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## CLINICAL LECTURE.

### CHRONIC NEPHRITIS.

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Male, thirty-three years of age, single, employed in gas works, working near the fire, becoming heated and cooling off suddenly. This is one form of exposure and is to be remembered. Family history negative Three years ago he had typho-malarial fever. Soon after, he began to be troubled with rheumatism, affecting only the left knee, never migrating from one part to another. About six months ago the pain suddenly ceased and almost immediately the other leg began to swell, first at the knee, then above the knee, and later, from the knee down to the foot. One month ago he began to swell in the abdomen, as well. From the time he first noticed this œdema until now, he has felt as though—were it not for the dropsical effusion and symptoms of dyspepsia—he were perfectly well.

Notice that this man has a peculiar pallor of the skin, and if you were to feel of it, as I do, you would notice it is somewhat harsh. When you pinch up the skin of a person suffering from kidney trouble, especially chronic diffuse nephritis, you will find that when you allow it to fly back, it will do so only gradually as compared with normal skin; in other words, the skin has lost some of its natural elasticity, besides becoming dry and harsh. Now, I told you that the man's heart was perfectly sound, so far as I could determine. His urine has been examined and found to contain considerable albumen and a few granular and epithelial casts; specific gravity, 1,025. There is no history, such as we sometimes get, in cases of this kind, and such as you will frequently meet with, where a person is seized with a rigor, followed by swelling such as this, with perhaps vomiting, severe headache, or other well-marked nervous symptoms; in short, all the symptoms of acute diffuse nephritis gradually merging into the chronic form of the disease. This accute form of Bright's disease is frequently caused by exposure. Where the trouble come on insidiously, as in this instance, you have chronic nephritis, so-called, from the beginning. The causes of this variety are syphilis, which this man denies; alcoholism is also denied; and gout or rheumatism, from which latter disease, however, he has suffered.

This brings me to discuss briefly the different forms of nephritis. The subject is in a state of great confusion, even among leading writers. What one describes as chronic parenchymatous, another will call chronic diffuse nephritis, and so on. Let us bear in mind that we have cases of nephritis in which only the epithelial lining of the tubes is affected; these constitute acute and chronic parenchymatous nephritis. Where the disease is ushered in by chill, fever, and bloody urine with large amount of albumen and casts, you have to deal, as a rule, with acute diffuse nephritis. Additionally, we have the most common form of the disease, namely, chronic diffuse nephritis.

There is one element in this man's case which has not as yet been investigated. He has apparently a great deal of ascites. The man denies that he has ever been, even a steady alcohol drinker. We know that cirrhotic conditions of the liver frequently are associated with cases of chronic nephritis. We have, in this man's case, as you will recall, great œdema of one limb, not so much of the other, and great distension of the abdomen. Now, that being the case, the liver ought to be investigated to see whether it is in a state of cirrhosis. Cirrhosis, as you know, is usually divided into two stages, first, that of hyperplasia of connective tissue, causing enlargment, and, secondly, the stage of contraction, in which the organ undergoes

great diminution in size. The normal liver dullness extends above to the 4th interspace or 5th ribs; sometimes percussion resonance extends lower down, but this you must remember is on inspiration. To make a long story short, let us see if this man's liver is enlarged or diminished. We have on the surface one evidence of cirrhosis, namely, enlargement of the superficial abdominal veins. We begin above and find the ribs, 1st, 2d, 3d, 4th, 5th. On the man breathing out, we find that liver dullness begins at the 5th rib. Now, you may not get the lower line of dullness, where you have so much effusion as you have here, by keeping the patient on his back, but by getting him to turn on his left side, any fluid in the peritoneal sac will naturally gravitate toward the left side of the body and give me an opportunity of ascertaining how far down the liver dullness extends. By so doing you notice that below the costal border I get tympanitic percussion resonance, since no liquid is there now. I also get tympanitic percussion resonance one inch higher up than the costal border. We find that this man's liver has undergone considerable contraction. You may remember that I told you some time since that in cirrhosis of the liver in their subjects, we can sometimes feel the under surface of the organ by placing the palm of the hand over the chest, with the fingers extending down over the costal border, making deep palpation in the backward and upward direction. By this means, I say, you can sometimes feel the lower surface of the liver, which is roughened in cases of cirrhosis. I have not succeeded in doing so in this case.

Now the prognosis in a case of this kind, is not favorable. In all cases of kidney trouble, the tendency is for more and more of the kidney to become involved. Again in a great many cases, the outward evidences of renal disease do not bear an exact relation to the extent of the lesion. Sometimes a man will die of some intercurrent disease, and the kidneys will be found to be the seat of chronic nephritis. The wonder is, how such an one can go on so long without manifesting any evidence of kidney trouble. Of course, any intercurrent disease, in such cases, is very apt to prove fatal. So we will look upon the prognosis in this case as grave. As far as ultimate recovery is concerned, we cannot promise anything.

When you come to consider treatment, you want to bear certain facts in mind. First, that a great many of the symptoms and conditions that arise during the course of a chronic nephritis are not due to the kidney trouble at all. Of course, the majority of the graver symptoms are probably all ascribable to the kidney lesion. In the second place, what can we do for the kidney trouble itself? What can we do for the symptoms caused by the kidney trouble?

What can we do, in this case, for the actual lesion in the kidneys? Very little, I am sorry to say. We know that the albumen and casts are due to the kidney lesion, and we shall endeavor to diminish the amount of this substance in the urine, but I fear, only, if at all, temporarily. We will give tincture of the chloride of iron, and with a bichloride of mercury in small doses. This sometimes does diminish the amount of albumen and casts. The chloride of gold and sodium has in my hands sometimes proved quite useful, in these cases. It has perhaps a curative action on the lesion in the kidneys.

Then we must improve or remove those conditions due to the kidney trouble directly. Now of course most of the dropsy is due to the condition of the kidneys, but not all. Why? Because in a great many cases of nephritis, there are circulatory disturbances, or there are other troubles. Heart disease and kidney disease are frequently associated in the same person. We may have diseases leading to dropsy, independently of any renal trouble. We must then get rid of the dropsical effusion, which in the majority of cases, is due to the kidney lesion. Now with the kidneys in bad condition, we cannot as a rule, remove the fluid through that channel, so, besides using diuretics (I gave him ext. digitalis gr. ½, arsenious acid gr. $\frac{1}{10}$ powdered squill gr. ½, in pill, 3 times daily to improve the blood and as a gentle diuretic) you will remember I told you one of the leading objects is to produce free purgation, with a view of carrying off the liquid. You can do more good by means of purgatives than you can by means of diuretics in these cases, and, so far from increasing the patient's discomfort, you will greatly relieve him in this manner. You would not, of course, give large doses of the drastic purgatives when the patient is feeble.

I have prescribed for this patient, calomel, gr. v, jalap, gr. x, at bed time, and, by the way, that combination, though old as the hills, is one of the very best to remove effusions of this kind. As a result of the pill containing digitalis, arsenic and squill, and the powder given one week ago, the œdema is already somewhat less, especially in the region of the stomach. I want to throw out the thought here, that where the

heart's action is good and regular, as in this case, you are perfectly at liberty to prescribe hydragogue purgatives, and can do so much more safely than when the heart is not in good condition.

We will continue this treatment and endeavor additionally to limit the amount of casts and albumen by the iron and mercury mixture which I gave you.

I have another case of chronic nephritis, to show you; one that presents quite as many points of interest as the case you have just seen.

We meet with cases of organic heart trouble, frequently associated with chronic nephritis, and this may occur in three ways: 1, organic heart disease may lead to chronic nephritis; 2, we have a class of cases in which the heart disease follows the kidney lesion. Many cases that begin as acute diffuse nephritis and acute parenchymatous nephritis lead to a chronic form of nephritis, and you have coming on hypertrophy of the left ventricle, sometimes to a very marked degree; 3, we have a class of cases in which chronic nephritis and chronic valvular disease of the heart exist in the same person, but the one condition not necessarily dependent on the other.

In the case which has just gone out, you have chronic nephritis with a heart which is apparently normal; the left ventricle however, will certainly enlarge in a short time, as a result of the nephritis. In the present case we have lesions of the heart and kidney, one lesion, probably, independent of the other.

M. R; age forty-three; married; housekeeper all her life; gives a rather unsatisfactory family history. There is no distinct specific history obtainable; there is no alcoholic history in the family. We obtain, however, a feebly marked history of rheumatism; one of her brothers, a year ago, had rheumatism in this city. Her parents never were troubled with this disease, so that we get a comparatively negative family history. Her own previous history is not without interest. She had always been well until about nine years ago, when she had influenza. This was followed by a falling out of some of her hair; at the same time she had eye trouble, due probably to iritis. She was subsequently well until five or six years ago, when she was suddenly seized with œdema of the limbs, which soon included the entire body. When the œdema began she did not have rigors, followed by high fever, bloody and smoky urine and well marked nervous symptoms, but the œdema came on simply with some nervousness, some little nausea, and some headache. Headache she has been troubled with for some years past. Let us bear in mind a few facts pertaining to her primary attack to her bed; the attack lasted about three months, and under treatment the œdema all disappeared, not, however, permanently forever. Subsequently, during the last five or six years, she has had from time to time a little œdema of the feet; she also had well marked attacks of headache, always attended with a great deal of nausea and sometimes even vomiting. Now that is the history of a great many cases of chronic nephritis, the history of a great many cases of chronic diffuse nephritis, beginning with more or less marked subacute attack, without febrile symptoms, the evidences of the attack disappearing, followed by comparatively good health for a certain number of weeks, or even months. Even during that time, however, you would frequently find albumen and casts on examining the urine. During all these five years she went on in that way. In the fall of 1890 she contracted a heavy cold, which was followed by rapid swelling of the limbs. Suddenly, on the cold getting better, the œdema in great part disappeared. These attacks recurred many times during the following winter, and were attended with considerable cough and muco-purulent expectoration, dyspepsia, nausea and frequent severe headache. This is the history she gave a week ago. She also says that within the last month or two, the swelling has been permanent and has risen to the abdomen. Now, with this long history, remembering her condition when she presented herself, we can make a correct diagnosis, which is chronic diffuse nephritis. She has a mitral regurgitant murmur and a mitral stenotic murmur as well. She, in all probability, has some dilatation of the right side, a murmur with the first sound, over the ensiform cartilage, indicating tricuspid regurgitation. Remember that where you have organic disease of the heart, soon after compensation fails we have chronic congestion of the kidneys, which frequently leads to chronic diffuse nephritis, sometimes simply to chronic parenchymatous nephritis. The question, however, arises in this case, whether nephritis or valvular lesion from which she is also suffering, was the primary affection.

This woman's heart trouble may have been coming on for many years, without the knowledge of any one about her, until the compensation failed, and that may have been her trouble six years ago. On the other

hand, we do know too that there are cases of organic heart trouble such as we see here, associated with chronic nephritis such as we have here, the one not depending on the other, and that is one of the points I want to emphasize to-day. If we had had her under observation all these years, we could have determined which ailment came on first. Looking at the case from the present standpoint, we are probably only justified in saying that we have chronic valvular disease and chronic nephritis in the same individual, the one not necessarily causing the other. So these cases of chronic diffuse nephritis associated with chronic valvular trouble, are modified cases of nephritis and the treatment is different from that of the case which has just gone out. Here too, we must attack the lesion in the kidneys. We cannot do much for it directly; more can be done by improving the general health of the patient. Unfortunately, neither can we do very much for the organic heart lesions directly. We can, however, greatly modify the effect of the lesions in the heart by regulating its action, and by increasing the force of its contraction. That is what we have been trying to do in this case and we have in part succeeded. You remember I told you that when you have a good heart, free purgation is the best thing to push actively to reduce the dropsical swelling. In this case before you, however, instead of drastic purgatives, we have ordered small doses of elaterium gr. $\frac{1}{8}$ every two or three days, which will act on the bowels. I will give her Basham's mixture for its effect upon her kidneys. I have also given her something, not to modify the walls or valves of the heart directly, but simply to increase the force of its muscular contractions and to regulate its action. For that purpose I gave digitalis in combination with Basham's mixture. This meets several indications. Basham's mixture is more or less diuretic, as well as an astringent to the kidneys and is a good blood tonic, while the digitalis affects favorably the heart, and its diuretic action assists in getting rid of the effusion throughout the body.

Let us then continue this treatment which was begun four days ago, more especially since she comes back saying she is much relieved; indeed, her dyspnœa at the time of her first visit was frightful. To-day, she breathes very well, all because the heart's action has been regulated, diminished in frequency and the force of the contractions much increased. As in the case of this woman, there may be apparently imminent danger of death and yet within a week the patient may be perfectly comfortable, simply because circulation has been reestablished, the lungs have been relieved, and some effusion gotten rid of. In other words, what seemed a week ago to be a case of nephritis, far advanced, with danger of death, to-day is a patient comparatively comfortable, without any other symptoms than swelling, slight cough and dyspnœa on exertion.

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## NECROSIS OF TIBIA.—TREPHINING FOR EPILEPSY.

BY THOMAS H. MANLEY, M. D.

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*Gentlemen*: The first patient that I will show you to-day, is a female 34 years of age. Five years ago she knocked her left knee against a step and fell. Soon after this, she developed pain over theleft tibia, the parts becoming swollen, inflammed and markedly enlarged. At this time, she was operated upon for the relief of her trouble, but without any apparent success, and since that time, she has undergone four other operations at as many different hospitals in this city, but with the same result. She looks now, as you can see, pale, anæmic and exceedingly emaciated.

She has been suffering so much pain by reason of this trouble in her leg that she has been compelled to take large doses of morphine hypodermically for its relief. The patient has been sent to me, by her physician, for the purpose of having the leg amputated, close to the knee-joint, as she is suffering the most intense and constant pain and is every day becoming more and more emaciated.

Having secured the consent both of the patient and her physician to amputate, I shall be guided in that respect largely by the etiology of the trouble; whether it be due to sarcomatous, carcinomatous, tubercular or syphilitic causes. She gives us no history of any specific trouble whatever, and neither do the lymphatics or lungs show any evidences of tubercular infiltration, nor do I find any evidence of a sarcomatous or carcinomatious degeneration to account for this trouble in the tibia. So, having excluded all these etiological factors we are obliged to fall back on traumatism to come at the cause of this trouble. As a result of this traumatism, this woman first developed a periostitis, which was soon afterwards, followed by an osteomyelitis, with the destruc-

tion and subsequent removal of certain portions of dead bone. I have frequently seen an osteomyelitis develop from the use of strong antiseptic solutions on the denuded ends of living bone. A peculiar feature of this disease is that it will skip the articular structure of bones, without leaving any possible trace of its destructive action on the cartilaginous or other soft, overlying structures. I have frequently seen instances of this kind, so that when it cut down on the bone, have found it reduced to a pulp.

The question might be very naturally asked of me, Why not amputate in this case? With such a perfect knee and ankle action as we have here without the slightest impediment to muscular movement and complete integrity of the fibula, I do not deem it wise to sacrifice a limb without first making an effort to save it. What I propose to do here is to cut down on the diseased bone as far as the periosteum, and then carefully dissect the bone of this membrane and remove all the diseased osseous tissue that I shall find. There is one great precaution that I wish to emphasize in this connection and that is when I reach the bone, I shall avoid the use of any bichloride solution whatsoever, and guard carefully the overlying periosteum.

The patient was then placed under ether and the parts carefully washed and cleansed, first with soap and water, and afterwards with a bichloride solution of the strength of 1-5000. An Esmarchs bandage was then applied above the knee-joint and carried as far up as the great trochanter of the left femur. An incision was then made with a scalpel through the soft parts, commencing at the insertion of the ligamentum patellæ and carrying it downwards about six inches along the anterior aspect of the tibia, dividing the skin muscles and fascia until the periosteum was reached. These were carefully held apart by means of hooked retractors held in the hand of an assistant and the periosteum was then cut through, and very carefully elevated from the bone by means of a periosteal elevator. When the bone was brought into view, it was found to be a complete shell and quite hard. It resisted several attempts on the part of the operator to cut through it with a chisel. When finally broken off these sections of bone were found to be wholly devoid of nutrition. The entire diseased surface of the bone was then scraped away by means of a Volkmann's spoon, and the medullary cavity opened and washed out with warm sterilized water. The periosteum was then sutured separately throughout its entire extent by an independent set of sutures and the overlying tissues were brought together and closed with catgut sutures, an opening at the upper portion of the wound being left for the insertion of a drainage tube. The surface of the wound was then dusted with iodoform powder and the usual dressings applied over this.

The immediate results of the operation were of a most gratifying character. The patient had been obliged for over four years previously to resort to daily use of large hypodermic injections of morphine to secure relief from pain. Since the operation, however, this pain has disappeared altogether and for the first time in four years has she been able to enjoy her natural sleep at night without the use of narcotics of any description whatever. Her appetite has returned, her bodily strength has been improved, and the case promises to be entirely successful. The operator thinks that within two or three months at the furthest, sufficient bone regeneration will have taken place and consolidation along the line of the tibia have been secured to enable the patient sufficient support for the purpose of locomotion.

### TREPHINING FOR EPILEPSY.

The second case I will show you is that of a young man, twenty-two years of age, with a family history as follows: He is the offspring of the marriage of an uncle and a niece, and enjoyed good health up to his fifteenth year when he developed an attack of typhoid fever of a rather mild character. Shortly after his recovery from this attack he was taken with epileptic seizures. At the beginning, these attacks came on at intervals of a month or two apart, but as he approached manhood, they became more frequent, so that lately be has been compelled to give up his work altogether and place himself under medical care. Various medicinal agents have been used towards overcoming this malady but without any meterial benefit whatever. Previous to his entrance to the Hospital he had on an average one convulsion a day, and, in connection with these seizures, he likewise suffered almost constantly from vertigo, headache, dimness of vision and melancholia. There was no history in his case of traumatism, except that at birth he was delivered by the forceps and at the temporo-parietal junction, immediately over the sagital suture on the left side, there was a well-marked depression of bone.

When the patient was referred to me by his physician, Dr. Randolph, of New Jersey,

he was anxious that I should promise an improvement in his condition, as a result of the operation, but this I declined to do. I, on the contrary, told him that an operation for trephining the skull was always a serious surgical undertaking, and one not devoid of danger to life, so that he must be prepared for any possible accident that might happen. I further told him that the operation might not result in any improvement in his condition. In spite of this plain statement of facts, the patient expressed himself to be desirous of placing himself under my care and taking his chances as to the consequences, inasmuch as he was unable to follow his usual occupation or do work of any kind on account of these convulsions.

I will proceed to trephine in this man's case with the use of an instrument of a narrow diameter and procced by slow stages until the cranial cavity is reached, when I shall enlarge the opening in the scull by means of a large Rougeur forceps and remove as much of the cranial plate as may be deemed advisable. With regard to the re-implantation of a disc of the fragments of the bone removed, that I shall not undertake to do this, for the simple reason that the operation is undertaken for the relief of pressure, not temporarily but permanently, and the replacement of bones in their former position would only leave things in very much the same condition as before the operation was performed. Furthermore, even though this course might be deemed advisable, it is almost invariably impracticable, for the simple reason that an osteoplastic operation of the scull in which bone is implanted, after being wholly detached, almost, inevitably results in failure, the returned fragments exciting, either a local inflammation and ulceration, or if they take on adhesions, in the course of time undergo complete resorption and disappear.

If I shall find the bones of the skull in this instance diseased or extremely vascular, no matter how important the restoration of these fragments may be considered, yet the free oozing of blood through the divided surfaces of bone would interfere with the reunion of the fragments.

After the skull has been divided with the trephine, I shall take particular care after I reach the dura mater, and before the arachnoid and pia-mater are exposed, to employ no antiseptic on those delicate serous membranes, but to depend solely and exclusively on sterilized water at blood heat; because I have found out, that when antiseptics are applied on the denuded serous membranes of the brain, there is great danger of meningitis resulting, which in my observation, particularly in children, almost certainly results in a fatal issue, despite whatever precaution you may take to prevent its spread. Accordingly, I shall employ antiseptics only on the surface of the external wound.

The patient was then placed under ether and the scalp having been completely shaved, a large oval incision was made through the scalp, connective tissues, Galea-capitis, and the pericranium; the scalp, the muscle and the pericranium, being each, detached and reflected back from each other. On applying the trephine immediately over the seat of the depression, it was found that the bone had a hardness as great as that of ivory. After the bone was exposed, the diploe was reached, and the inner plate of the skull touched by the teeth of the trephine, the instrument was withdrawn, so that the disc of the outer plate of the skull might be removed before the trephine was carried nearer in the direction of the brain. When this disc of bone was raised, it was discovered that the trephine was on the bare dura mater; in other words, that there was no diploe: it had become completely absorbed and the bone thin and eburnated. The Rougeur was then taken in hand and the opening enlarged until it had a diameter of about two inches. The dura mater was next incised when the convolutions of the brain crowded up through the opening made in the osseous vault. The parts having been freely sterilized, the finger was introduced through the incision made in the dura mater between this membrane and the arachnoid, the brain substance gradually pressed back in different directions. No further depression was discovered, but there was considerable spouting of blood from one of the vessels between the convolution of the cerebrum which occasioned considerable trouble before it was finally controlled.

The parts having been freely irrigated with warm sterilized water, the dura mater was sutured with fine catgut, the pericranium replaced and sutured in the same material. The muscles and scalp were sewn consecutively with catgut sutures; and no drainage was employed, except a strand of catgut at either terminus of the incision. The surface of the incision was now freely irrigated with a bichloride solution of the strength of 1–5000 and the ordinary antiseptic dressings applied.

The patient recovered well from the ether but the following day he had a temperature of 100⅘° F., and a sensation of great heat and irritation in the scalp. He slept well,

however, and on the third day the dressings were changed, when it was found, as a result of the free use of the corrosive sublimate solution, his entire scalp was one mass of vesicles. It was clearly evident then, that if the bichloride solution would give rise to such an extensive dermatitis as this, on the hard and resisting scalp, that its action on the sensitive and delicate structure of the meninges might result disastrously to the patient. Vaseline was freely applied to the blistered scalp and soft, fluffy dressings as a covering over this.

The patient developed no seizure since the operation, save on the fifth day he had a slight twitching of the muscles of the face, but accompanied by no loss of consciousness, no vomiting, or no turgescence of the vessels of the face. His general condition has been very greatly improved, his sense of vertigo, headache and oppression in the employment of vision having wholly disappeared. The incision healed by primary union.

The remarks above given have been written three weeks after the operation was performed, and it is safe to infer that this case presented one of that favorable class wherein trephining may be considered as an operation that will lead to a permanent cure for epilepsy.

## COMMUNICATIONS.

### AN ESSAY ON THE HISTORY OF MEDICAL SCIENCE. [1]

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For the purpose of briefly reviewing the history of medical science, the residence of men upon the earth may be conveniently divided in four epochs. The first extending from an indefinite past to a time probably 3,000 years before our era, when medicine was practiced by Egyptian priests; the second from this time, say 3,000 B. C., to the appearance of the Greek physician, Hippocrates, born 460 B. C., the third from Hippocrates to Albrecht von Haller (1708–1777); the fourth from Haller to the present time.

*First.*—During that long and remote period of time in which man, clothed in the raiment with which nature provided him, wandered alone on the face of the earth, not yet having acquired the faculty of articulate speech, he had no more knowledge of remedial agents or resources than is possessed by the grizzly bear.

*Second.*—But in obedience to the law of evolution, language developed; society became organized; the forces of nature were to a certain extent subdued to the uses of man, and wealth began to accumulate, so that all his time was not occupied in securing the absolute necessities of life; then there was leisure for meditation, speculation and investigation.

Civilization having first appeared in tropical or semi-tropical latitudes where the aspects of nature are comparatively speaking, terrible, the imaginative faculties of the mind were early brought into exercise. Events occurring suddenly without warning and without apparent cause, such as earthquakes, volcanic eruptions, inundations, epidemics of fatal disease, were attributed to the wrath of an outraged deity (and what a *horrible* insult to the intelligence of the 19th century, that it should be proclaimed from the pulpit of a Christian Church that the recent floods on the Atlantic coast were an expression of the wrath of God.) Disease thus being thought to be of supernatural origin, it followed naturally that the first remedy that suggested itself to the human mind was some sacrifice to appease the offended God; and if a sacrifice were to be offered, the individuals who would be expected to officiate with the greatest prospect of success would be the magi or priests, devoted to the service of the gods. It thus happened that the sacerdotal class very generally and over a wide extent of the earth's surface in both hemispheres, were the first to practice the healing art. Magic and incantation were the earliest means resorted to to effect a cure. When, however, in the course of time it was found by accident or experience that certain roots and herbs possessed remedial virtue, these were added to the armamentarium of the magician. Owing to the implicit confidence of the people in the efficacy of magic, these developed a very interesting combination of the practical and the magical in their methods. The *practical* recipe might contain any variety of roots and herbs applied in ointment or drunk in decoction, but *with* this the magical formula was also roquired to deal with the demon cause of the disease. The analogue of this practice can still be witnessed every day in the practical directions of the physician as to diet and regimen, while he gives a prescription to please the fancy of the patient, or in

[1] Read before the "Fortnightly Historical Club," Milwaukee.

other words incant, that is, enchant the demon cause of the disease.

As man first became civilized on the banks of the Nile, we naturally look there for the first evidences of the existence of a knowledge of medicine. We accordingly find that the traditions of the ancient civilizations, outside of Egypt, refer the origin of their acquaintance with medicine to that country. It is, however, supposed by some that progress was made in this science at an equally early date by the Assyrians and even by the Phœnicians.

There is in Berlin a papyrus of the 14th century B. C., being an essay on inflammation written in the ancient writing of Egypt. In the 11th century, B. C., there was in Egypt a college of physicians, and monumental writings confirm the fact referred to in Exodus that women practiced in certain departments of medicine there. The Egyptian Orus and Thoxeth have been regarded as the prototypes of the Greek Apollo and Hermes.

During the Egyptian bondage the Israelites acquired some knowledge of medicine; an evidence of such knowledge being afforded in the article by Moses in the diagnosis and treatment of leprosy. (Leviticus xiii, xiv.)

The Greeks derived their first knowledge of medicine from Egypt, and at the time of Homer they they had made some progres in that science. Ancient traditions say that the Centaur Chiron was the first Greek physician. His pupil, Æsculapius, about whose history there is much of uncertainty and mystery, became to the Greeks the God of Medicine. The sons of Æsculapius became physicians, and two of them, Machaon and Podalirius, were surgeons in the Greek army during the Trojan war. In the first battle on the banks of the Scamande, Menelaus received a severe wound. Machaon removed the "shaft" and

"Straight the broad belt with gay embroidery graced
He loosed; the corslet from his breast unbraced;
Then sucked the blood, and sovereign balm infused,
Which Chiron gave, and Æsculapius used."

Iliad iv. Line 248 *et. seq.*

In the third battle Machaon himself was so severely wounded as to render it necessary for him to be taken to the rear. Idomenens, in urging Nestor to convey "Great Machaon" with all speed to the ships is made to say:

"A wise physician, skilled our wounds to heal,
Is more than armies in the public weal."

Iliad xl. Lines 836 and 637.

It would, however, appear from the references to medicine scattered through the works of Homer that external medicine (surgery) was practiced almost to the exclusion of internal. Internal diseases were treated as in Egypt and Persia by incantation and magic. Among the Greek warriors in general, at the time of the siege of Troy, a knowledge of the treatment of wounds was widely diffused. An indication of this is furnished by an accident by Ulysses. While boar hunting the wild beast gored him in the knee, laying bare the bone. The wound was closed and successfully treated by his companions. Odyssey xlx. Line 500 *et. seq.*

The descendants of Æsculapius continuing the practice of medicine, gave rise to an order of priests devoted to the service of the god of medicine. They were called Æsclepialæ, Aristotle was of this order. Eighteenth in the line of descent from Æsculapius is Hippocrates.

Third epoch, Hippocrates to Haller.

The Greek mind was advancing and emancipating itself from a belief in sorcery and magic. Travelers were returning from journeys into Asia and Africa bringing with them foreign ideas.

Thales, the father of Greek philosophy, was of Phœnician descent, born in Miletus, Asia Minor, about 640 B. C. He resided for twenty-two years in Egypt, and while there imbibed philosophical ideas from the lower classes, which upon his return, he made the basis of Ionian philosophy. Following him came a great host of philosophers, and almost as numerous schools of philosophy. These philosophers were deductive reasoners, and their systems were based on that method. We understand by deduction reasoning from general truths to particular truths; from principles to facts; from the greater to the lesser; from the abstract to the concrete; the assumption of a general truth of principle and from that reasoning downward to particular facts or truths.

Hippocrates (460–350 B. C.) became a philosopher, turning his attention to medical science. It was inevitable that he should be powerfully influenced by the great speculative philosophers with whom he was contemporary. Antisthenes, Aristophanes, Democritus, Diogenes, Icocrates, Plato, Protagoras, Socrates, all of whom were deductive reasoners, and he hence proceeded in the same manner. By this method he sought to evolve from his own inner consciousness a knowledge of the nature of disease. It is unnecessary to enter at all fully into the speculations of Hippocrates, suffice it to say that to him is attributed the so-called

"Humoral Pathology," that is, that the essential seat of disease is in the fluids of the body. Disease, therefore, being an entity and seated in the blood, the practice of blood letting naturally followed, in the hope of thereby removing from the body the entity disease. He was a good observer and left voluminous works, many of which have been preserved to the present time. He recognized "the restorative power of nature."

The Greeks having entered enthusiastically into speculative philosophy and proceeding by deductive methods, there soon arose innumerable *schools* of philosophy; the various sects of the Ionian, Eleatic and Italian; the Cynic, Pythagorean, Epicurean, Sophistic, and this was inevitable from their methods of reasoning. Medical science likewise, having been founded on the philosophical speculations of Hyppocrates a deductive reasoner, necessarily presents a similar history down to our own century.

There were the Empirics neglecting anatomy and physiology and following only experience, without inquiring the *how* or the *why*; the Dogmatics claiming all authority for doctrine on theory; the Methodists who believed it unimportant to know the cause or nature of diseases, but only their common qualities, these being relaxation, contraction of minute passages, and a mixed state; the Eclectics who had no theory of their own, but tried to extract grains of truth from others; the Sceptics who were satisfied with asserting "That nothing could be known, nothing demonstrated."

Galen in the middle of the second century A. D. pursued the study of medicine in Alexandria, where he was a witness of and active participant in the controversies going on between the different sects in medicine, which were no less acrimonious than the conflicts between religious sects. He became the founder of a new sect or school based on the nature of medicines. He adopted the Hyppocratic ideas of the four elements earth, air, fire, water; the four humors blood, phlegma, bile and black bile; the four qualities dry, moist, hot, cold; applying the same qualities to drugs. He also endorsed the "Humoral Pathology." He exhibited wonderful ingenuity in explaining the numerous visible phenomena of disease, according to these principles. He was an industrious writer and an accurate observer of the symptoms of disease.

Celsus, although not the founder of any medical sect was the first Roman to make his influence felt in European medicine.

Until the fall of the Western Empire and the beginning of the Dark Ages, the Galenic school was dominant in Europe. During the Dark Ages what knowledge there was of medical science, together with nearly all scientific knowledge disappeared from Christendom; and was only saved from extinction by the Semitic Jews and Arabs.

While the Arabs occupied their own barren and dreary country they remained rude, barbarous, and ignorant, but Mahomet having arisen and established his religion among them, they embarked on a wonderful career of proselyting and conquest. They no sooner abandon the old scenes and subjected themselves to new environment, both as to scenery, people, soil and climate, whereby they were enabled to accumulate wealth, than they developed a capacity for civilization and intellectual advancement which will always excite wonder in the mind of the student of their history. Throughout the Moslem Empire great academies and universities sprung up.

At these institutions of learning medical science received its share of attention. The Arabs first raised pharmacy to the dignity of a science and produced the first pharmacopœia. They first applied chemistry to the practice of medicine. In surgery they made free and effective use of the knife and actual cautery. At this time, in Christian Europe, the sufferer from disease hastened to some Saint's shrine, expecting to be cured by miracle. Sancho, the Great, King of Castile, visited Cordova to receive treatment at the hands of Moorish physicians. Charlemagne employed for himself the services of the celebrated Jewish physician, Wintarius, and one at least of the Roman Popes employed a Jewish doctor. Ehazes, an Arab physician of Baghdad, 10th century, first described small pox and measles. Mesna, of Damascus, 11th century, produced the first work of any account on Materia Medica, a work which served in the time of James I, of England, as the basis of the first London Pharmacopœia, issued by the College of Physicians. The great names in Arabian medicine are Albucasis, Alkhendi, Axenzoar, Averroes, Avicenna, Mesna, Ehazes, Serapin, besides a long list of lesser lights. For the amount of work done and the industry manifested by the Arabians, comparatively little actual advance was made in medical science, their chief merit being, that besides making important discoveries in pharmacy, Materia Medica, therapeutics and chemistry, they kept from oblivion what was already known.

In the 15th or 16th century, the chemical

school arose, of which Paracelsus was the most conspicuous representative. His name was Theophrast Bombast von Hohenheim, but regarding himself as a greater man than Celsus, he assumed the name Phillipus Aureolus Theophrastus Bombastus Paracelsus. The fundamental dogma of this school was that the human body contains within itself all the parts of visible nature "sun, moon, stars, and the poles of heaven" (whatever that may mean) and subject to the same chemical laws. Diseases were therefore to be treated by chemicals. Paracelsus believed that he could indefinitely prolong life by his mode of treatment, yet he himself died at the age of forty-eight years. He introduced into practice, antimony and calomel. His career produced but little effect upon medical science, and his followers degenerated into quacks and impositors.

Italy which was intellectually in advance of the rest of Europe early in the 16th century was no less so in medicine. Clinical lectures were first delivered in this century by DeMonte, at the Hospital of St. Francis, at Padua. Students of medicine from all parts of Europe flocked thither for instruction.

The 16th ceutury having accomplished the reformation, probably the most momentous event in the history of mankind, and the human mind being in a measure released from the thralldom in which it had been held for a thousand years by religious intolerance and bigotry, rapid advances were made in all those things which go to make up civilization. Medical science participated in this movement.

The 17th century presents the names of Harvey, Bartholine, Hooke, Malpighi, Willis, all of whom made more or less important discoveries in anatomy and physiology. This was the century of Bacon and the Novum Organum, Des Cartes and the mechanical philosophy, von Helmont and his chemical explaination of morbid processess, Sylvius and Glisson, whose names have been given to certain anatomical structures.

Although Bacon in this century raised the inductive method to a working system, it did not produce any immediate result either upon philosophical speculation or medical science. The deductive methods of the preceding two thousand years had developed a corresponding characteristic in the mental processes of man, so that even men who appreciated the futility of the method, ably demonstrated it, nevertheless fell victims to hereditary tendencies, and the influences of environment. We see a notable instance of this in DeReed, one of the founders of the Scottish School of Philosophy. He ably demonstrated the weaknesses of the deductive method, announced his purpose to erect a system of philosophy by inductive methods, and then *deductively* laid the foundation of the "Common Sense School." The same thing is true of John Hunter, the great pathologist, who was never able wholly to emancipate himself from deductive methods.

The two principal schools of the 17th century were the Iatro-physical and the Iatro-chemical. Borelli, of Naples (1608-1679), who was the most celebrated exponent of the former, explained all the functions of the body on mechanical principles. The body was regarded as merely a system of tubes, and all the vital processes were explained by the principles of hydrostatics and hydraulics. This was a very popular and powerful school. Sylvius of Leyden (1614-1672), was the founder of the latter. The adherents of this school made extensive use of chemicals in the treatment of disease, and taught that every organ of the body had its own particular fermentation, and that abnormalities in the condition of these ferments is the cause of all disease. They denied the humoral pathology of Hippocrates.

The 18th century was one of great activity in medical science, as it was in every field of inquiry. But men not yet having abandoned the deductive methods of their predecessors, and laboring under the influence of that great obstacle to all advancement, exaggerated respect for the past and the great names of history, a great number of schools or systems had their origin in this century.

Bœrhaave (1668-1738), attempted to establish an electric school by selecting all things valuable from the writings of his predecessors.

Hoffman (1660-1742), attempted to reconcile the idealistic and materialistic schools of philosophy, and his medical theories from a part of his complete theory of the universe. According to him, health depends on a proper "tone," some diseases being produced by excess of tone or "spasm" and others by lack of tone or "atony."

Stahl (1660-1734) opposed the materialistic school of philosophy, carrying his views into medical speculation. The theory of Stahl "Animism" attributes to the soul the ordinary functions of animal life in man. The symptoms presented in sickness

were simply the efforts of the soul to rid itself of disease.

John Brown (1735-88), of Scotland, founded what was known as the Brunonian School, based on the principle "excitability." He taught that some external or internal excitant gives rise to all the vital phenomena, that diseases are all either sthenic, that is, dependent on too great excitability or asthenic, dependent on deficient excitability. This system did not exercise much influence outside of Scotland.

John Hunter (1728-93), the great Scotch patholigist promulgated the theory that diseases are seated in the solids of the body rather than in the fluids. This theory exerted a very salutary influence over the then prevalent practice of indiscriminate blood letting.

The last system builder whose name deserves mention is Hahneman, whose speculations have given rise to the Homeopathic School. This system requires a fuller notice than the others because it is the only *school* of medicine which even in name has survived the inductive methods of the 19th century.

Hahneman (1755-1843) in medicine, like Reed in philosophy, fully recognized the untrustworthiness of the prevalent deductive methods, and vigorously opposed them, but, like Reed, in attempting to improve upon medical science as it then existed, he built up another by the identical methods he had been engaged in opposing.

His system is based on the law of therapeutics known as "Similia similibus curantur," that is, in order to cure a disease a medicine must be administered which, if given to a person in health, would produce symptoms similar to those manifested by the disease. This theory was not, however, original with Hahneman, for Hippocrates speculated upon it, and still later, Paracelus entertained it, laying it down more specifically and almost in the very words afterwards used by him.

This was not, however, all of homœopathy. According to it the "vital process is neither mechanical, nor chemical, nor stoechiometric, nor electro-galvanic, but is a higher power which avails itself of these subordinate principles in the performance of its functions." And this being so it was theorized that drugs which act upon the vital processes do so by virtue of "some occult self-existing force"; the causes of disease were impalpable, immaterial and spiritual, and to be removed by drugs possessing "some occult *self-existing* force." Disease was in fact simply the "totality of the symptoms" and was a "spiritual dynamic derangement of our spiritual vital principle." From these speculations arose Hahnemann's doctrine of the dynamization or potentization of drugs by dilution. He carried this principle so far as to teach that when a drug was carried to a *high* dilution, olfaction was all that was necessary to produce its effect, and that if, in making the 30th attenuation of *drosera*, the mixture was shaken twenty times instead of ten, a dose of it might prove fatal to a child. He taught that seven-eighths of all chronic internal diseases were caused by *psora* or the itch driven in; that investigations in pathology were useless as "nothing can be known of disease with certainty except its perceptible phenomena," that is its symptoms; he denied the power of nature to heal, attributing to drugs alone the power to *cure* disease. "That state of the organism which we call disease cannot be converted into health but by the aid of another affection of the organism excited by means of medicines." It is almost needless to say that the disciples of Hahnemann have for a long time abandoned his theories with respect to the nature of disease, potentization of drugs by dilution, and psora or the itch. And moreover a very large proportion of them while they believe there is such *a* law as that of "similia" do not claim that it is *the* law. Homœopathy, therefore, being a deductive and theoretical *system* has never been able to produce one single great discovery in any branch of medical science, either preventative or curative, or in any of the collateral sciences, or one of sufficient importance to attract the attention of mankind, as to be recorded on the pages of medical history.

This brings us to the fourth epoch—Haller to the present time.

The dawn of a better day was about to break upon medical science. Inductive methods after a slow and painful struggle were forcing themselves more and more upon the attention of investigators in every department of science. The inductive method is the direct reverse of the deductive; it is reasoning from facts to principles; from the lesser to the greater; from particulars to generals; from the concrete to the abstract; the observation of a vast number of facts and the carrying on of multifarious experiments then, is the distinctive feature of the inductive method, and generalizations are only reached after the most exhaustive and elaborate experimentation and study. By this method nearly, if not quite, all the great discoveries in science have been made.

Albrecht von Haller (1708–1777) was born in the city of Bern, Switzerland, and became a professor in the medical department of the University of Göttingen. He saw the hopelessness of arriving at scientific truth by the current methods and casting theory entirely aside, expressed the opinion that the only way to develop *rational* medicine is by studying anatomy, physiology, pathology and the physiological effects of remedial agents; that for good diagnosis we need pathology, and for pathology, physiology is indispensable.

Rational medicine then began when Haller recognized the fact that "the laws of nature are not things which we can evolve by any speculative method. On the contrary we have to discover them in the facts; we have to test them by repeated observation and experiment. In proportion only as they hold good under constantly increasing change of conditions, in a constantly increasing nnmber of cases, and in the greater delicacy in the means of observation does our confidence in their trustworthiness rise."

Since the time of Haller the advancement of medical science has gone on with ever accelerating speed, so that the medicine of yesterday is not the medicine of to-day, and to-morrow that of to-day will represent the historic and dead past. Haller was professor of anatomy, botany, and the practice of medicine and surgery in the University of Göttingen. To-day a first-rate medical school requires from eight to fifteen professors to teach the same subjects. This is simply given as an illustration of the growth of these sciences during the past hundred years.

To merely mention the positive advances made by medical science in this fourth period would be a weary task, and would be tedious and uninteresting to the general reader, but I cannot close without adverting to certain men and certain discoveries which may almost be said to mark epochs in medical practice and thought.

Marie Francois Xavier Bichat (1771–1802) opened a new era in medicine by directing the attention of investigators to the study of *tissues* of the body. He only lived thirty-one years, but his indefatigable energy, profundity of knowledge and reach of thought, justly entitled him to the epithet of "father of general anatomy." His great work on "General Anatomy" appeared in 1801, one year before his death, and is now, of course, ancient literature, but the impulse it gave to the study of elementary *tissues* of the body has given rise to the present science of histology, that is, the minute anatomy of tissues. From this has been developed the science of pathological or morbid anatomy. Bichat by his plan of studying the tissues hoped to arrive at some knowledge of the causes and nature of life itself. In this grand object he of course failed, but his name will be handed down to posterity not only as one who made important additions to an old science but laid the foundation of a new one.

The discovery by Jenner of vaccination need only be mentioned,

Marshall Hall (1790–1857) discovered the reflex function of the spinal cord and the excito-motor system of nerves, made public in 1832 and 1837. Magendie and Bell about 1825 discovered the existence in nerve trunks of separate fibers for motion and sensation, thus rendering it possible to diagnosticate diseases of the spinal cord, and laying the foundation for the present science of neurology. These discoveries deserve to rank with that of the circulation.

Lænnec (1782–1826) studied the sounds produced in the chest in the act of breathing, both in health and disease, also the sounds produced by the heart's action. He made minute and voluminous notes of what he heard, supplementing these observations by a very large number of post-mortem examinations. By these studies he was able to identify the sounds heard over the thoracic walls with the pathological condition found after death.

These studies, with that of those who have been his followers in this field of investigation, have raised physical diagnosis by means of percussion and auscullation to a science. Prior to this time endocarditis had no place in the classification of diseases and pericarditis was only guessed at, while valvular diseases of the heart were only located after death, on the autopsy table.

The labors of Richard Bright culminated when in 1827 he published a rather modest essay entitled "A Report of Medical Cases." This essay elucidated the pathology of those affections of the kidneys now known as Bright's Disease.

The publication by Beaumont in 1833 of his studies on digestion by means of experiments and observations on the historical Alexis St. Martin threw a flood of light on the physiology of this procees. It was thus learned that digestion is not completed in the stomach; that the active agent in stomach digestion is an acid liquid secreted by the walls of the stomach, and that this secretion is not a constant one, but is only poured out under the stimulus of food.

Schönlein, in 1839, discovered that the contagious disease of the scalp known as "favus" is caused by a microscopic parasite, to which the name of "Achorion Schönleinii" has been given. This discovery proved to be the starting-point in wonderful developments in our knowledge of parasitic diseases.

The discovery of Anæsthesia need only be mentioned; also the recent discovery of the local anæsthetic properties of cocaine which are of great service in minor surgical operations.

In Materia Medica and Therapeutics the work of discovery has gone on so rapidly that we now have a long line of valuable remedies which were entirely unknown a few years ago.

The discovery by Koch within the past twenty years that the essential cause of tuberculosis is a bacillus, has led to a great activity in microscopic studies of contagious diseases, and there are now strong indications that many of them will be proven to be due to the presence of microscopic germs. This discovery may be said to be the starting point of Medical Bacteriology.

The discovery that a microbe, the "Streptecoccus Pyogenes Albus" is the essential factor in pus formation and that certain substances in solution destroy them, led in the hands of Sir Joseph Lister to "Antiseptic Surgery" which has prolonged thousands of lives during the few years it has been practiced. It has rendered otherwise grave operations comparatively safe, and has opened the wide field of abdominal surgery.

Lastly, I will speak of Louis (1787-1872), not last however, because least. On the contrary, I believe his labors and that of his co-laborers have done more to advance the efficiency of medical practice than labor in any other one direction in medical science. His opportunities for studying disease in the hospitals of Paris were immense, and he made the best possible use of them. He here studied the natural history of disease entirely uninfluenced by medicines. He spent many years in this work, keeping the most minute notes of thousands of cases. The result of these observations, was the discovery that certain diseases are, to use a term first applied by Dr. Jacob Bigelow, of Boston, self-limited, notably typhoid fever and pneumonia; that many of them tend intrinsically to recovery; and moreover that certain events in the course of disease, for example, hemorrhage from the lungs in the early stages of tuberculosis, are conductive to recovery. These discoveries have had a wonderful influence over the practical part of medicine, rendering the physician less vigorous in "combating" the *disease*, and more solicitous to maintain the vital forces of the patient until the disease has had time to run its course.

But there are still 17th century ideas remaining in the world and they die a prolonged and hard death. Thus, so firmly fixed in the *popular* mind is the notion of the physician's *antagonism* to the supposed *entity disease*, that the term "Allopath" is not regarded as misapplied, inaccurate, and a libel on a great body of scientific workers, even by those who known full well the derivation and signification of the word.

The rational physician then of to-day denies that disease is an entity in the body to be driven out like a wolf from a sheep fold; denies that it is impalpable, immaterial and spiritual and only to be *cured* by medicine; but affirms that it is a "perversion of the material structure of the body or some of its parts." He believes in the "Vis Medicatrix Naturæ," the power of nature to heal; he in fact knows that it *alone* effects a *cure* and that he is simply the "gentlemanly hod-carrier" of nature, supplying it may be materials with which she can work on removing obstructions from her way.

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## THE TREATMENT OF ACUTE DYSENTERY.

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There is possibly no disease which will more greatly tax our resources, and which will require more skill and patience in its management than acute dysentery.

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The room which the patient occupies should be light and comfortable. While it should be properly ventilated, care should be exerted to prevent our patient from becoming chilled at any time. The bed covering should be adequate to prevent any draught of air from producing this effect. The patient should be directed to keep his bed. Any movement on his part will tend to increase the number of actions from the bowels, and at the same time make demand on his strength, and, in cases where there is much debility, of course, make possible a failure of the heart. Let us divide the cases of acute dysentery into two classes:

*First—The Ephemeral*: This embraces a class of cases all practitioners meet; it is the mildest form of catarrhal dysentery, and commonly lasts no longer than twenty-four hours to four days, even when no treatment whatever is employed. These cases are attended with slight inflammation, and are, in every way, ephemeral. It the *second* class I shall include those cases which persist, after four days, with increasing severity, or those which, from the beginning, show themselves essentially severer than the first-named variety from their incipiency, and which are denominated catarrhal and diphtheritic generally by the anthorities. Between these types, however, there is only a difference of degree of intensity of the disease, and this division of the subject into two categories has only for its object the convenience it affords in the discussion of the treatment. In the treatment of the first-named variety, rest is the essential curative factor. But this may be increased by producing its conditions. To insure perfect rest it is best to administer sulphate-magnesia and sulphate of morphine. We in this way remove all irritating matter from the bowel, and the opium brings about the desire to sleep. These supply the demands in those cases perfectly, and it is rare for another dysentric action to appear after the sulphate magnesia has acted. The *second* class of cases, however, yield not so kindly, and for its relief, the methods of treatment and various drugs used are very numerous. It shall be my aim in this paper to give consideration of only those which have been attended by results that would command respect or which have been advocated by gentlemen whose prominence and reputation as investigators in medicine inspire our confidence. A treatment which numbers among its advocates Bartholow and several good observers is one which advocates the administration, as a leading remedy, of the sulphite of magnesia. This remedy alone is one which, in my hands, has not proven satisfactory, but I depend on it rendering me assistance in connection with other remedies. A careful trial of the drug will not, I think, demonstrate its value at all as a curative remedy. It has failed to lessen the duration, in my cases, to the extent which I accomplished with other remedies. I am inclined to believe that the treatment by saline cathartics alone owe their place in medical literature to an illogical understanding of cures that appear to be accomplished by them.

First, there will be, in all epidemics of dysentery, cases belonging to the first-named class, and others not quite so mild which recover in a few days. These are, illogically, put down as cures brought about by sulphate magnesia, while all experienced physicians know that many cases would have recovered without any treatment. Again, the treatment by salines has gained strength by a comparison of statistics of cases treated by it with those treated by methods formerly in vogue. These statistics embrace those treated by mercury, blood-letting, etc., and are not of a character with which to compare any modern treatment. My own experience has been against the treatment, yet I find the sulphate magnesia a valuable adjuvant in the treatment of this affection. It evacuates the bowels well, and exerts a mild refrigerant influence. In the year 1859, Mr. E. Scott Docker, an English army surgeon stationed on the island of Mauritius, used ipecac in fifty cases, losing but one patient out of that number. To him belongs the credit of again bringing to the consideration of the medical profession a drug which for a long time had been buried in oblivion. This remedy had been introduced by Piso, who had seen the brilliant results which had been attained in the treatment of this disease by the natives of Brazil. It was used as a secret remedy for a long time, with much success, in France. Owing to a quarrel over the profits from its sale, the secret was made public. For a time the demand was very great. But it came, after a time, to be regarded as less valuable than was at first thought, and it soon fell into disuse. I have always thought the abandonment of this agent was due to its indiscriminate use, and to its application in cases of diarrhœa due to many causes. I believe it is not exaggeration to say that since the introduction of ipecac by Docker, thirty years ago, it has been the treatment most relied on by the greatest number of practitioners, and has obtained the greatest meed of praise at their

hands. In regard to its action, allow me to quote from Begbie: "The therapeutic action of the remedy has been variously ascribed to its nauseant, its diaphoretic, and its laxative or purgative effects." The latter was the view entertained by that distinguished writer, Sir John Pringle. Dr. Maclean thus expresses himself in regard to it: "It is probable ipecacuanha owes much of its usefulness in this disease to its action as an evacuant. It is also a blood depurant of an effective kind. It appears to increase the secretion of the whole alimentary canal, as well as the liver and pancreas; under its use tormina and tenesmus disappear, and feculent evacuations are more quickly restored than by any known remedy." Ewart and other great observers regard it as without a doubt, the most valuable remedy at our disposal. Shoemaker mentions that this drug has been used with the most striking results in the treatment of dysentery.

I have found, from my conversations with medical men, that they, to a large extent, fear the emetic qualities of this drug to such a degree that they hesitate to use it. This fear is ungrounded. It does not produce emesis at all in a large percentage of cases if the proper precautions are observed. But if it should produce emesis, this should not deter us from the use of so great a remedy. Emesis does not continue long, even when it occurs. It does not, except when there is great exhaustion, carry with it the slightest danger to life. But on the other hand, the production of emesis has been recommended as a curative agent by able observers like Pringle, before the ipecac treatment had any following in this country or England. Relative to its mode of administration, allow me to quote somewhat at length from Maclean. He says: "The patient should be at once ordered to bed, and as quickly as possible brought under the influence of ipecacuanha in large doses. Some insist on the propriety of first giving a full dose of Battley's sedative, tinct. opii, or a few drops of chloroform, with the intention of making the stomach tolerant of the remedy, and restraining nausea and vomiting. I believe that the sedative in some cases is useful, and acts in the manner just described. On the other hand, I have often seen ipecacuanha do its work well, and with little disturbance of the stomach, without opium. Should it be determined to premise opium, thirty drops of the tincture, and a half hour after followed by from twenty-five to thirty grains of ipecacuanha, which should be given in as small a quantity of fluid as possible; a little syrup of orange-peel covers the taste as well as anything else. As already advised, the patient should be kept perfectly still, and abstain from fluid for at least three hours. If thirsty, he may suck a little ice, or a teaspoonful of cold water at a time may be allowed. It is seldom that, under this management, nausea is excessive, and vomiting is rarely troublesome, seldom setting in for at least two hours after the medicine has been taken. The abdomen should be covered with a large sinapism, or a sheet of spongio-piline sprinkled with a little turpentine, after being wrung out of hot water. In from eight to ten hours, according to the urgency of the symptoms and the effect produced by the first dose, *ipecacuanha*, in a reduced dose, should be repeated, with the same precaution as before."

In my own practice the use of ipecac is, however, somewhat differently combined, though in the main I have followed the method just quoted from Maclean. It is my custom to give an hypodermic injection of from one-fourth to one-half grain of sulphate of morphine. I have also a piece of thapsia plaster applied over the epigastrium. My results with the ipecac treatment have been all that could be desired, and I have found that in ninety per cent of the cases treated with it as the principal agent, it brought about a cessation of the disease quicker, by from five to fifteen days, than other methods. The length of time which was consumed in bringing about the results will be considered later on.

It is my practice to give salol, in doses of five grains, every three hours, after six hours from the initial dose of ipecac. This has, I feel assured, rendered me substantial assistance in that it exerted an antiseptic action on the alimentary canal, relieved the gaseous distension and colic, which are often so annoying as to cause the patient the greatest discomfort and pain. Salol has, itself, some reputation as a remedy in dysentery. I am not prepared to speak of its powers when used alone, but I am sure when given along with ipecac its virtues will display themselves to the satisfaction of any candid observer.

It is important to say that I premise the treatment of all cases of acute dysentery to which I am called by a dose of sulphmag, and six hours thereafter, when there has been a thorough feculent evacuation, I administer the ipecac in the manner already outlined. Throughout these cases it

was necessary in many instances to employ as adjuvants many other agents, which will be considered under seperate heads.

The treatment by opium has the endorsement of Sydenham and others down to Prof. Flint, and several other able physicians have given it the most sweeping praise. It is usual for those who use it as the leading remedy to first clean out the bowels with castor-oil, or another laxative, and then give opium at such intervals as will secure quiet.

In regard to the use of opium in dysentery, Heubner says: "Especially is it impossible with opium or morphine to keep the bowels at rest all the time. The colic and tenesmus are, indeed, moderated for awhile, but they return after a time, even in spite of larger doses, and are then more violent than before. Besides this the state of stupefaction and heat into which the patient is brought by the use of opium is decidedly unfavorable in dysentery. I would, therefore, in common with the majority of writers of this century and the preceding one, not give my approval of the methodical use of opium in dysentery, and would only use this drug temporarily, and as a palliative remedy.

My experience bears out the correctness of these words of Heubner, and it is only when their is great pain, or persistent nausea, or, as has before been stated, we desire to prevent nausea, or sleeplessness, which no other drug can supply, that I administer opium. The reasons given by Heubner must be regarded as a valid and unanswerable argument in favor of the surrender of opium as a curative remedy of dysentery. At the same time its place could not be supplied well; and it will afford us assistance which we will not find easily in other palliative agents. The treatment by rectal injections of a solution of nit. of silver, or alum, or other astringents, is a practice which has had a following from the time of O'Beirne, in 1834, down, who have claimed results which were the most brilliant imaginable. Recently Prof. Whittaker has advocated this treatment, many able observers have given testimony as to the benefit derived from the treatment of dysentery in this way. I have not found it a treatment upon which I could place reliance, and have several times regretted having resorted to it. Just now there is not any generally agreed method of using these enemas. In children they are difficult of application, and several times I have found them very painful. It is possible at some future day the limitations of this treatment of dysentery may be outlined, and then it may be found that a certain class of cases will yield to them which before were intractable. Heubner, on this point, very justly says: "We must not expect too much from astringent enemas, for in the majority of severe cases much too small a surface is reached. In the dysenteries of 1870 I used the much-renowned nitrate of silver enemas almost without any evident good results; on the contrary, the pain was increased."

The treatment of blood-letting, or mercurials, have not at this time sufficient following to warrant a consideration here. Their place is only an historical one. The use of tannic acid, sulph. of copper, nit. silver, catechu, sub. nit. of bismuth and a long list of astringent medicines have been lauded by different writers at different times, but no one of these can be said to possess the power of abridging the duration of the disease. Yet when the disease is subacute, or when there seems to be a want of tone of the alimentary canal, these agents occasionally do good. The nitrate of silver sometimes is excellent in this demand. So will arsenite of copper, under circumstances like the one spoken of, yield us the happiest results. Recently the arsenite of copper has been lauded as a remedy of surpassing value, but in a limited experience with it I have not found it all that could be desired.

The question of diet is one of the greatest importance. Nearly all practitioners have seen the balance of life tip to the wrong side from improper indulgence in food. The diet should be fluid as nutritious as possible. Milk, fresh, and when necessary peptonized, is an important article. This should be given at frequent intervals throughout the disease. I most generally give some eligible preparation of pepsin immediately after taking the milk. This assists the weakened digestive forces, and prevents in that way the formation of milk curds, which would be as injurious to the diseased surface of the gut as the passing of feces. I alternate the milk with liquid beef peptonoids, and find the result to be good. The diet must be watched with considerable care until the convalescence has progressed unto a very considerable extent. Some authorities recommend allowing patients to eat ripe fruits when convalescence has set in fairly. This I have tried in ten cases, with the result of relapses in all of them. I was unable to attribute it to any other cause, and must, therefore,

charge it to the fruit. Since this unpleasant experience I have not allowed my patients to eat fruits—at least early in the convalescence. In fact, I charge them to make this one of the last articles to return to.

The question of the use of stimulants is one of the greatest importance in its bearings on the treatment of this disease. When the nature of dysentery is borne in mind, that it is an exhausting disease—one which soon brings stout people to be lean and strong ones weak—and in those who are delicate there is constant over exertion put on the heart—I think it will not be questioned that the proper administration of stimulants is a most proper and necessary course of action. In those who are strong it will not be necessary to give stimulants so often—every two or three hours, or oftener, if the patient is required to get up often. In delicate persons, brandy or some other stimulant should be given every hour or oftener, and in such quantities as will keep the volume of the pulse good. This will require an amount which the study of the parsicular case only reveals. Brandy, or milk-punch, or egg-nog, will be about our best remedy.

Another important consideration is fever. When the temperature does not attain a higher range than 103° F., it may correctly be regarded as a conservative process, and does not call for special medication. When there is a fever which we think is due to malaria, then it is our duty to prescribe quinine, but not without there is evidence of this fact. There are cases in which the fever will mount to 105° or 106°, and in those cases it is to be determined what measures shall be directed to the fever. I believe that if the fever is malarial nothing but quinine should be given; and, due to other causes, our reliance in reducing it should be put upon sponging the body with tepid water; and we should not fly to antipyretics until the last resort. These agents depress the heart, and make no substantial change for the better in the weak; yet it is occasionally right to resort to them, but it should not be done unless the fever attains a dangerous height.

There is probably no more distressing feature in this disease than tenesmus. For its relief several remedies have been offered, but none are all that we could desire. The application of bladders of cold water to the anus has been, in my hands, one of the best remedies. I employ occasionally leeches to the margin of anus, but find them no more beneficial than the cold bladders, and their application is often disagreeable to the patient. Carbolized vaseline smeared in and around the anus will afford a measure of relief and is worthy of trial. Prof. Loomis and several authors like warm applications to the abdomen. I have found poultices and all manner of applications which are laid upon the abdomen useless and awkward. They have to be removed when the patient arises, and are constantly falling off. This leaves the abdomen more exposed than if nothing was applied. I use in many cases turpentine liniment applied over the abdominal surface. This is especially valuable in cases where there is much gaseous distension of the bowels.

In conclusion, allow me to return to the ipecac treatment and say that out of sixty cases treated by this method ninety per cent. recovered in an average of twelve days. The remaining ten per cent. continued and became chronic or went beyond this time considerably. The test of the value of a given treatment is its ability to lessen the duration of the disease. In Flint's cases under the opium treatment the duration was from four to twenty-one days. This, of course, comprised cases of the ephemeral type. Heubner's cases are put down as light cases, eight to thirteen days; diptheritic, three to four weeks. When these facts are brought to mind it would seem that ipecac treatment is above all other methods at our disposal.

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## TUBERCULOSIS.[1]

BY R. W. STEWART, M. D.,
PITTSBURGH.

Tuberculosis may be truly said to be the pest of humanity. Few diseases are so insidious in their onset, and none so disastrous in their results. One-seventh of the human race is destroyed by it.

What tuberculosis is, the lesions it produces and the best means with which to combat it, will be my object to describe in this brief paper. Nine years ago Robert Koch proclaimed to the scientific world and conclusively proved, that tuberculosis was the result of the growth in the tissues of a micro-organism called the bacillus of tubercle. So conclusive has become the proof of Koch's assertions, so thoroughly has all opposition been swept away, that it would be reprehensible on my part to needlessly occupy your time with a history of the discovery of the bacillus of tubercle, and the steady ad-

[1] Read before the Allegheny County Medical Society, May 19, 1891.

vancement of the views originally promulgated by Koch until all opposition was silenced and antagonism turned to enthusiastic support.

The manner in which the tubercle bacilli gain entrance to the system are various, the respiratory and alimentary tracts being the most common seats of entrance, but there is abundant testimony to prove that abrasions in the skin may afford a vulnerable point for the entrance of the bacilli as is demonstrated in the production of lupus.

The bacilli may remain localized at the seat of entrance, or circulating in the blood current may fail to find a suitable location for their growth, and be ultimately destroyed or removed with the excretions. A less favorable termination, however, frequently takes place. The bacilli may find a nidus where the conditions are favorable for their growth in almost any of the tissues, but most frequently in the lungs, where they produce the disease called consumption; in the lymphatic glands, where they produce the disease called scrofula, a term now rendered obsolete; in the skin, where it produces lupus; in the bones, where they are said to produce twenty-five per cent. of all chronic inflammatory diseases. The joint structures, the tendons and tendon sheaths, the peritoneum and the brain are frequently affected. In fact, but few of the tissues are exempt from their inroads.

In acute miliary tuberculosis almost all the organs of the body become simultaneously affected. This seldom or never occurs from a primary infection, but nearly always from the absorption of some caseous material from some pre-existing tubercular focus, by which a quantity of the bacilli or their spores are liberated in the blood and attack the tissues, whose vitality is already impaired, and hence rendered less resisting by the presence of a pre-existing disease. So varied are the manifestations and treatment of tuberculosis, according to the tissues affected, that it would be impossible in a paper of this character to do the subject justice. I have therefore chosen to confine my remarks as closely as possible to the condition known as pulmonary tuberculosis, because it is the one with which as a body, we are most familiar and will, I hope, elicit a very free discussion. I will take it for granted that you are familiar with the histology and pathology of tubercle, subjects too well known to permit of discussion, and will pass at once to the consideration of the predisposing causes, the symptoms and treatment of pulmonary tuberculosis.

Prominent among the predisposing causes must be placed the hereditary tendency to the disease. It is not to be understood that the disease itself is inherited, but that the patient inherits from the parent, pulmonary tissue which has insufficient resisting power to repel the invasion of the bacilli. It may be well to remember that in a disease so prevalent as the one under consideration that the atmosphere under favorable conditions, is frequently contaminated with the tubercle bacilli or their spores, chiefly as the result of the drying of tubercular sputa, and it must happen that every individual, or at least those living in communities where tuberculosis exists, is frequently exposed to the contagium of the disease. If we also bear in remembrance that there is a standing declaration of war to the death between the bacilli and the tissues, and that in the conflict the weakest must succumb, we will readily realize why a parent with diseased lungs may bequeath to his posterity a legacy of tuberculosis. Another potent cause of pulmonary tuberculosis is prolonged contact with the contagium of the disease, as may be witnessed where the husband whose wife is tubercular contracts the disease, or *vice versa;* or in the melancholy but numerous instances where a member of a family without a tubercular ancestry contracts the disease, and the remaining members who have been in intimate contact with the patient are subsequently attacked.

Any condition or disease which lowers a patient's vitality is a predisposing cause of pulmonary tuberculosis, and it is the more powerful if the condition directly affects the respiratory apparatus. Among such may be mentioned imperfect development if the chest, occupations which hinder free and full respiratory movements, bronchitis, pleuritis and pneumonitis, the latter especially if the inflammatory exudate is slow in undergoing resolution.

It is unnecessary to pursue this part of the subject further, and I will only emphasize what my remarks must have indicated, that tuberculosis is a contagious disease, but in order that the contagium may thrive there must be conditions in the soil on which it is planted that are favorable to its growth.

When pulmonary tuberculosis has reached an advanced stage its manifestations are so plain, that he who runs may read; there is something so characteristic in the combination of symptoms that go to form the make-up of such a case, that a diagnosis is already made before the patient has been examined. The emaciated figure, the stooped

shoulders, the sunken chest, the rapid breathing, the hacking cough and the clubbed fingers, are so unmistakable and so familiar that even the laity are seldom in error in their conclusions. But of such cases I have little to say; they have probably passed the point where we can aid them; their fate is already sealed, and the utmost we can do is to ward off a little longer the impending doom, and ease the rugged pathway along which the victims of this cruel and relentless disease must tread until death, less merciless, stills the hacking cough and in eternal sleep throws the mantle of oblivion over the scene.

Of much greater importance to us and to the patient is the diagnosis of the disease in the early stages, important because the earlier the disease is recognized the easier is it to be contended with, and the more beneficent are our therapeutics.

Of such importance do I consider the early diagnosis of phthisis that I feel constrained, in order to emphasize its importance, to digress from the subject, and speak a few words on the curability of phthisis. Consumption is usually regarded, by the laity, as invariably a fatal disease, and I fancy, also, by some of our professional brethren, especially that class not yet extinct, who have a contemptuous disregard for physical diagnosis and microscopical achievements. And they have good reasons for such judgments, since the disease is seldom recognized by them until it has reached a stage where its progress cannot be retarded, nor a fatal termination averted. That consumption is necessarily a fatal disease is a false and grievous conception, and the sooner it is totally eradicated the better will it be for the profession and humanity.

Consumption is often cured when in the incipient stage. This fact was early impressed on me by numerous illustrations which I witnessed a few years ago among the river men while under treatment in the marine wards of Mercy Hospital. These men are notoriously careless of their physical welfare, and their occupations are of such a nature that pulmonary complaints are rife among them. At the time I referred to I was anxious to familiarize myself with the early symptoms of phthisis, and made the routine habit of examining every marine's lungs, regardless of the disease for which he was admitted. I was astonished at the number of cases of incipient phthisis that were discovered, often among those who did not complain of any pulmonary trouble, or, at the most, of a slight cough. It was even more astonishing to witness the frequency with which the physical signs of incipient phthisis would disappear under improved hygienic conditions and appropriate treatment. It is only fair to add that in these cases the diagnosis was based on the physical signs, as a microscopical examination of the sputa was not made. Since that time I have witnessed a number of similar cases, although such a happy termination does not always take place.

I do not put before you my own limited experience as conclusive proof, but will bring forward the cold facts as gleaned from a source into which mistakes in diagnosis and results are not liable to creep, namely: *post-mortem* examinations. The following is quoted from John Hughes Bennett's article on phthisis, in Reynold's System of Medicine (Vol. II., page 130): "The careful *post-mortem* examinations now made with such regularity in our large hospitals have demonstrated the frequent occurrence of old condensations, cicatrices, and calcareous concretions at the apices of the lungs in persons of advanced aged who have died of other diseases. In 1845 I pointed out that in the Royal Infirmary of Edinburgh they occurred in the proportion of from one-fourth to one-third of all the individuals who died after the age of forty. Roger and Boudet had previously shown that at the Salpetriere and Bicetre Hospitals in Paris, among individuals above the age of seventy, they occurred in one-half and in four-fifths of the cases respectively. There can be no doubt that these cicatrices and concretions indicate the healing and drying up of cavities and softened tubercular matter at some previous period in the life of the individual, and the consequent spontaneous cure of the disease in a considerable number of persons."

I return to the diagnosis of phthisis in its incipient stage, the importance of which I endeavored to impress upon you by pointing out that in this stage the disease, under proper hygienic and therapeutic treatment, was frequently curable.

Phthisis, in its incipient stage, is usually a very insidious disease. There is no line of demarcation to distinguish when health ended and disease began. Perhaps the very first indication is a condition of malaise—an indefinable feeling of not being well, without any concomitant symptoms to indicate pulmonary mischief. Often there is tenderness over one or both the apices of the lungs, or fleeting pains may attract the patient's attention to this region. A slight cough, associated with but little expectoration, is a

usual concomitant, although the cough may be severe and the expectoration profuse where a bronchitis has been an accompaniment or predisposing factor in the causation of the tuberculosis.

Another symptom of considerable significance is a slight elevation of temperature, which may not be over half a degree. If the temperature should be elevated on several successive examinations, and if there is no obvious cause for it, the presence of tuberculosis should be strongly suspected, and a careful examination of the lungs should be made. As regards the method of examining the lungs a few words may be said. The patient should be stripped, only the slightest covering to the chest, such as light under-clothing, is admissable. This rule should be rigorously observed, regardless of whether the patient be male or female, child or adult. If the patient, through false ideas of modesty, should object, it is the physician's duty to refuse to stake his reputation on a hazardous guess as to the condition of a patient's lungs, whose sounds are muffled from his ear by the interposition of a pair of corsets, and the various other paraphernalia which deck the female form.

The physician, who, under such circumtances, ventures to give an opinion as to the presence or absence of incipient phthisis, must either be gifted with an abnormal acuteness in hearing and discrimination in eliminating the extraneous sounds produced by the respiratory movements on the wearing apparel, or, what is more likely, he has a firm conviction that if he did hear the pulmonary sounds he would be unable to tell what they meant, and very considerately draws the line on his imposition at the point which necessitates the removal of the patient's garments.

To my mind the most characteristic of the physical signs of incipient phthisis is the broncho-vesicular breathing heard usually at the apex of the lung, and often best heard at the supraspinous fossa. The prolonged expiration heard in this region is significant, but care must be exercised that the blowing sound of the large air tubes be eliminated. With the broncho-vesicular breathing there is often associated a few crackling rales and a jerking inspiration, although the latter may be present when disease is absent. Percussion dulness and increased vocal fremitus are of very great weight as corroborative evidence of tuberculosis; but the inability to detect either is of very little negative value.

Another very important element in the diagnosis is the microscopical examination of the sputa; and here we come to the only pathognomonic symptom of incipient phthisis and that is in the demonstration in the sputa of the tubercle bacilli. The negative value of the absence of the bacilli is of but little weight, except on repeated examination of the sputa.

I will pass over the methods of staining and examination for bacilli; also the symptoms of advanced pulmonary consolidation, and the stage of destruction of lung tissue with formation of cavities, and hasten to the no less important subject of treatment.

Prominent among the remedial agencies must be placed improved hygienic surroundings, a generous diet, and suitable climatic changes. A climate which permits of outdoor exercise the greatest number of days in the year is the one to which, in a general way, preference should be given. Where there is a tendency to hæmorrhages an elevated climate should be avoided, but under other circumstances an elevated climate, such as Colorodo affords, is preferable, inasmuch as the rarefication of the atmosphere necessitates a fuller expansion of the lungs, which, probably, tends to the reopening of the closed air cells. It may be well to sound a note of warning at this point on the folly of sending patients to another climate for the winter, in the hope that a permanent benefit will ensue. It seems to be a settled fact that patients who have been benefitted by such a change are under the necessity of remaining in the advantageous climate, as their return, except for a limited period, is fraught with the danger of a renewed outbreak of the disease.

Among the therapeutic agents may be mentioned cod liver oil, which may be said to be of value only in those comparatively few cases where it does not nauseate. The hypophosphites are doubtless of value, as are a score of other remedies. A favorite treatment of mine, and one which was chiefly used in the cases of the marines already mentioned, is the long-continued use of the following prescription:

℞ Hyd. chl. corr. ..... gr. j.
Ammon. chlorid. ..... ʒ ji.
Potas. iodidi ..... ʒ jss.
Syr. pruni Virg. ..... ʒ iv.
M. Sig. One teaspoonful after meals and at bedtime.

The most remarkable remedy yet brought to light, and one which has made its already famous discoverer a household name in every home in the land, is Koch's lymph, or as it is more properly called, "tuberculin."

This remedy is the product of the tubercle bacilli. It is brownish colored liquid, is

exceedingly powerful, and is only used in the dilute form by hypodermatic injection, being inert if taken by the stomach. Now that the excitement following the announcement of the discovery has subsided and a considerable time has elapsed in which to test the value of the remedy, we may venture to give an opinion as to its merits and mode of action.

In order to understand the explanation given by Koch regarding the latter, it is necessary to speak a few words on the phenomena of coagulation necrosis, which is a peculiar change resembling coagulation caused by the action on the cells of a chemical product, or ptomaine produced by bacterial agencies. It is supposed that the caseation of a tubercular nodule is a condition of coagulation necrosis produced by the action on the tubercle cells of a ptomaine, the result of the growth of the tubercle bacilli. Koch reasoned that if he could add to the already ptomaine poisoned tubercular tissue sufficient of the same poison he could produce at will a coagulation necrosis of the living tubercular tissue, and thus place it in a condition to be either thrown off from the surface or removed by absorption. That this is the correct theory of the action of tuberculin I do not venture to express an opinion, but it explains in a satisfactory manner some of the phenomena observed in its use, such as the curious fact that the tubercle bacilli are not killed by the use of tuberculin, and that only living tubercular tissue is effected.

It is exceedingly difficult to give a satisfactory opinion as to the value of a remedy like this which has so many biased opponents and blindly enthusiastic advocates. What I have to say is the result of considerable attention to the voluminous literature of the subject, as well as personal observation of a great many cases under treatment in the hospitals of Berlin, and also about three months experience with the use of the remedy in this city.

In order to be brief, my opinions must necessarily be dogmatical.

Tuberculin is of considerable value as a diagnostic agent but is not always reliable, the reaction being often wanting in the surgical forms of tuberculosis and also occasionally in the pulmonary form.

As a rule the most marked benefits are obtained where the necrotic tubercular tissue can be thrown off from the surface as in lupus, tubercular laryngitis and tubercular ulcers.

Most cases of pulmonary tuberculosis in the early stages will be benefitted by the remedy, some to a very marked degree, so that a cure may be fairly claimed. Advanced cases of pulmonary tuberculosis where cavities have formed, and especially if the disease is rapid in its progress, are not likely to be benefitted, and will probably be injured by the treatment.

In the surgical forms of tuberculosis, tuberculin will be an aid to the operative treatment by assisting in the complete eradication of the tubercular tissue.

The nature of this paper restricts it within narrow limits. Many points upon which I would like to touch must be passed unnoticed, but I hope that this fact may, of itself, stimulate among the members a friendly criticism of the paper and a free discussion of tuberculosis.

(See Society Reports for discussion.)

## Society Reports.

### ALLEGHENY COUNTY MEDICAL SOCIETY.

*Scientific Meeting, May 19th, 1891.*

C. S. Shaw, M. D., Vice President, in the Chair.

### DISCUSSION ON TUBERCULOSIS.

THE TOPIC FOR DISCUSSION, "TUBERCULOSIS," WAS OPENED BY DR. R. W. STEWART. SEE PAGE 57.

Dr. T. C. Christy: I think the paper of Dr. Stewart concisely and accurately written. His experience is of value to all of us. I agree with him on his points on the physical diagnosis of tuberculosis. I believe that every physician is in duty bound to strip his patient and examine thoroughly; it is the only true way to examine a case. It seems to me that there is no better antibacillic material than pure blood; that is, there is nothing that will destroy bacilli so much as pure blood. Secondly, that the larger cells that we find in the blood vessels will destroy the germs, and keeping these two points in view, we have a basis of treatment which cannot be surpassed. We must follow the line of Dr. Stewart's plan of treatment, that it is pure air, hygienic surroundings and care that are most efficacious in treating this disease. Now going back to the idea that pure blood is the best germicide we have, anything that will induce the formation of pure blood will place these patients in their early years in a much safer condition than they would otherwise be; that is, in public school buildings and in

their daily exercise we can do much to prevent them from contracting disease. Another point which has lately been advanced by a French writer: He says that animals are more easily affected by bacillic injections where they have been deprived of food; or, in other words, that hunger will make persons more liable to contract this disease. Taking pigeons, which are not particularly susceptible to bacillic influence when deprived of food for several days, injections of the bacilli caused inoculation and death, whereas where they were well fed, they were free from the influence of the bacilli. I think if we are careful in the examination of patients, careful in the management of their case not to underfeed them and to look after their hygienic surroundings, we accomplish more than we can in any other direction.

DR. GRUBE: One person in seven dies of tuberculosis, and I venture to say that one-half of the race have the germs of tuberculosis in their system. It is natural that a disease of such importance should command our careful attention. Our profession is exceedingly active in devising some means for the treatment of this disease. I think the greatest point, however, one which the speaker who has just preceded me brought up, is the early diagnosis and treatment of this disease. It is a disease of predisposition, and I believe that the ground work is laid in the embryo. I think here is the secret of the predisposition to tuberculosis. Dr. Trudeau, of New York, made some valuable experiments. He made an experiment with which doubtless many of you are familiar, and which will, I believe, become classic. He took fifteen rabbits and divided them into three lots. With the first five, he injected the pure solution of bacilli into their lungs, into the abdominal cavity, and under the skin of the neck. These five he placed in a dark cellar. The next five were inoculated in a like manner, and were turned loose on an island in the lake in the month of June, and they were fed with vegetables in addition to the vegetation upon the island which was accessible. The other five were not inoculated at all, but a hole was dug in the middle of a field; this hole was ten feet in depth and the remaining five rabbits, having been placed in a box, were lowered to the bottom of the pit. The box was covered with boards and dirt, a trap hole being left for the introduction of food. Of the first five rabbits, in the cellar, four died within a month, and all of general tubercular infection. This existed not only in the lungs but generally. The five in the pit were taken out perfectly well; they were emaciated, their coats were rough, but there were no signs of tuberculosis in any of them. Of the five which were liberated on the island, one died within a month; it had some tubercular affection of the lungs. The other four grew fat, and at the end of four months, were perfectly well and in fine condition; they were killed then, and not even the point of inoculation could be found; there was no sign of tuberculosis whatever. Now I think this is a lesson which can be made of practical use. Some one has said that the cause of consumption in London was that the poor were too poor to buy butter and fat, and the rich injured their digestion with too much pastry. What I want to bring out is the point that the rapid loss of weight in one who has this predisposition ought at once to call our attention to the fact that he is preparing the way for bacilli, and it is an open question whether in such cases the loss of weight is caused by bacilli or whether the ground is merely being prepared for them; I am inclined to believe that the latter is the case. Of course with a great many patients it is impossible to do very much. It is a matter of ability to bring the patient through the early stages of the disease safely. This means giving up a vocation which they cannot afford to give up. The question of occupation is one of the principal ones in this disease. Nearly one-half the printers die of consumption.

DR. BUCHANAN: Dr. Grube's remarks call to my mind the theory proposed by that excellent pathologist, Dr. Formad, to the effect that tubercular individuals were such as had narrow lymph spaces, that it was the obstruction in the lymph spaces that caused tuberculosis, and he endeavored to prove this by microscopical measurements of the lymph spaces in different species of animals. I believe he made the same observations on human beings who were tuberculous, although I am not sure of that. I do not know whether Dr. Formad has endeavored to reconcile his theories with the modern views of tuberculosis as brought forward by Koch, but I believe that Dr. Formad's theory had its origin about the time that Prof. Koch discovered the bacilli of tuberculosis.

DR. BANE: I have been in Colorado several weeks, and there met many people who had gone to that State on account of consumption, who went there expecting to die, but whose lives have been spared by reason of the climate, or you might say, by the air,

which is dry and light, especially when you go where it is so high as it is at Colorado Springs and Denver. As has been brought out by Dr. Stewart, in order to get sufficient oxygen more air is inhaled, the lungs are expanded and the cells which are not used in this district are employed there, and there is no doubt this is one of the reasons why those patients who have not a sufficient breathing space are so much better in that climate. It is a fact that many persons die in Colorado of consumption, but unfortunately they go there too late to be benefited; if they would go while in the incipient stages, certainly many of them would live to a good old age, but as a last resort many go there when they should stay at home, when they would live longer at home surrounded by home influences, than they do in the climate of Colorado, with all its advantages. There are many things to be said about sending a patient to Colorado. Persons suffering from heart disease fare badly in the climate on account of the rarity of the atmosphere; persons of a nervous temperament do not rest well there. I met there a friend, a neighbor of mine in the profession, who some six years ago went to Colorado Springs. He was told that it was not worth his while to go, that he would not live more than six months. However, he went, and began to improve from the time he reached Colorado. When he arrived there, his temperature dropped down to normal and there remained. He continued to cough for eighteen months. Then he thought he might come home to Philadelphia; he returned home, and after remaining some two weeks, his cough returned and he was obliged to once more go to Colorado, and on his reaching that place the second time it took him as long as before to become free from the cough and feel well again. He then learned he would have to remain in Colorado if he wished to live long. From Colorado Springs he went to Denver, where he has a good practice and good health. From his appearance I should think he weighs about 200 lbs. One physician who went there with consumption now weighs 300 lbs. Certainly we have patients here that we cannot expect to cure in this climate that we are not justified in keeping here if they have the means to take them to a climate such as exists in Colorado. This is the impression made upon me after visiting the State and meeting these people. True, they have to remain there, but it is no punishment to live in Colorado, where they have as fine a climate as I have ever seen, and where eastern people, with eastern business and social ideas, form the bulk of the population.

DR. RIGG: I was much pleased with Dr. Stewart's paper. I think it deserves our careful consideration, and there are many points in it that would bear further investigation. The doctor's calling attention to early diagnosis is a very important thing, also, the natural tendency or the inherited condition. The doctor stated that tuberculosis is not an inherited disease, which fact is well established at this time. The predisposition, however, is inherited. We have it in the animal the same as in the human family. You take the rabbit and the guinea pig they are naturally tuberculous; the dog and cat are naturally non-tuberculous; the rat is not naturally tuberculous. Now, you take a family of children coming into the school-room, and it is a comparatively easy matter to see which are tuberculous children. The conditions under which they have been reared may have had much to do with developing the condition. I am not sure that nationality has not something to do with it. Six or seven years ago, I made some little investigation on that line. This investigation of mine was conducted through the southern part of Westmoreland county, and the northern part of Fayette, and covered a period of three years. I suppose in all I collected statistics from 150 different families. In regard to the investigation of Dr. Formad, it was my pleasure to be with him a part of the time he was making the investigation. He took the children in the hospital and held *post-mortems* there and examined some of the tissue from all children who were believed to be tuberculous yet had sickness and died of acute diseases, and also from children who had died of tuberculosis. He examined the connective tissue from other children that had died that we believed to be non-tuberculous, and there was a marked change, a marked difference in the lymph channels that fully convinced me that there was more in it than mere theory.

My recollection is that he had modified his views at that time greatly with reference to the cause of the bacilli. He admitted that the bacilli might be the carrier of tuberculosis, and that it might possibly be the specific poison.

The question not settled in my mind is this: are the bacilli, as a rule, one of the early evidences of tuberculosis? Take a subject that is predisposed to it, that has, if you please, the narrow lymph channels, and will you not have a certain amount of engorgement in the lungs before the bacilli? In other words, are the bacilli present before

there is inflammation, or are the bacilli formed subsequently to the inflammation? In regard to the influence of surroundings that has been referred to by both the gentlemen who have spoken. An experiment was made on rats, I do not recall the particular poison that was used, but it made an impression on my mind. A number of rats were caught and kept under favorable conditions; they were injected with specific poison and turned loose in comfortable circumstances under hygienic surroundings. Others were put in a treadmill, where they were obliged to work and kept at it until they were tired. They sickened and died with tuberculous disease. The first lot lived and thrived. But that is only one evidence of many that pure air, pure food and pure surroundings fortify the system against the attack of any disease; I do not care whether it is tuberculosis or something else; if there is a special tendency to tuberculosis, it will likely be that; if there is a tendency to something else, it will likely be that. In regard to the influence of a rarefied atmosphere; I think there is a good deal in that, and we might see why, if we bear in mind the fact, that the apex of the lungs is the portion usually involved first. It is, perhaps, the portion of the lung least used under ordinary circumstances; expansion is less there than at any other portion of the lung.

I have nothing to say as to treatment. In regard to the tuberculin it seems to me that the theory on which it is given will hardly bear us out in using it constantly. I think it is a step in the right direction, yet the question that comes up in my mind is whether or not you can generate a poison from the bacilli that will do what is claimed for the lymph, or that will aid nature in throwing off the diseased tissue. It seems to me we cannot expect much on that theory. As far as I am personally concerned, I want to see some more rational theory advanced or else more satisfactory experience. I have two cases on hand now, and for a month I have debated in my own mind whether or not to advise a trial, and I have not had the courage to do it. The patients are willing and ready to take the risks if so advised, and if there can be anything that will help me to decide, I would be very glad. One of them is a case of tubercular trouble, pulmonary tuberculosis, and the other is a case which Dr. Buchanan saw with me six weeks ago, tuberculosis of the lymphatic glands and the ankle joint.

DR. STEWART: As to the doctor's remarks in regard to Colorado. A patient came to my office from Colorado recently; he had returned to this city and gone to work. I examined his lungs and found marked consolidation of the upper portion of both lungs. I told him to go back to Denver as soon as he could. I do not think I could have done him any good. With regard to Dr. Rigg's question as to whether the bacilli are present at the early stage. My understanding is that the presence of the bacilli is an essential factor at the initial stage of the disease, and that the tubercular products are the result of the growth of the bacilli.

I would speak a few words of my own results in the use of Koch's lymph. The first case was for diagnostic purposes on a patient in the Mercy Hospital, but he left before a result could be ascertained. The second and third cases were in St. Francis Hospital; both cases were confined to their rooms and the disease was progressing rapidly, both improved at once and have since left the hospital, although still continuing under treatment, and their improvement still continues. The remaining cases were treated in Mercy Hospital; one advanced consumptive did not improve and has since died. Another remained two weeks in the hospital with but slight improvement, but continues the treatment at his home, and is steadily improving. A case of destruction of the nose supposed to be lupus, did not give any reaction even to a dose of twenty-six milligrammes, and was not benefited. I considered the condition as that of an epithelioma. A case of lupus of eyelid at present under treatment gives promise of a cure.

### HÆMORRHAGE AFTER LITHOTOMY.

DR. J. W. MACFARLANE: On the 15th of last April, assisted by Dr. Small and the residents of the Western Pennsylvania Hospital, I did a left lateral lithotomy upon Jas. Mehen, removing a mulberry calculus weighing six drachms.

The history of the case is as follows: The lad is sixteen years of age and undersized. His trouble dates back to last July, when he moved to, and secured employment, in Kittanning. The pain and vesical irritation that began to bother him soon after his advent in the place, he attributed to the drinking water, which, he thought, did not agree with him.

In spite of some treatment, his symptoms steadily grew worse during the fall and winter months, when he finally presented

himself to Dr. Thos. McCann, who sounded him and discovered a stone in the bladder. He was sent to the West Penn Hospital, and I operated upon him as before stated.

No trouble was experienced at the time of the operation; there was some bleeding, but no more than is usually seen; the stone was extracted slowly, and the bladder carefully washed out. I saw the patient about half an hour after the operation, and, though I did not examine the bed, I felt the boy's pulse, and left him thinking all was well. About fifteen minutes after this the nurse noticed that he was bleeding freely. Dr. C. B. King, who happened to be at hand, introduced an umbrella-shaped tent into the wound, a catheter forming the center of the tent, and oil silk the outer, the space between the silk and the catheter being packed with cotton. This seemed to arrest the hæmorrhage for a time, but the presence of the catheter and clot in the bladder produced irritation, constant straining, with expulsion of the tent, and a return of the hæmorrhage.

Between three and four o'clock, some three hours after the operation, Dr. King having gone home, I was summoned to the hospital, and on my arrival found my patient with head down and feet elevated; he was pale, sweating, vomiting, thirsty, with a rapid pulse, and in anything but a promising condition. I examined the wound, but was unable to find the source of hæmorrhoge. I removed some clots from the bladder, tried to introduce a fresh tent, but the attempt at introduction produced so much straining that I immediately abandoned it.

I then slipped a piece of gauze, well oiled, over my index finger, introduced it into the wound, and, withdrawing the finger, packed the space as well as possible with absorbent cotton; but this did not arrest the hæmorrhage, the oozing still continuing. The irritation of the bladder being so great as to preclude the introduction of anything within its walls, we concluded to flush the intestines with hot water, and see what effect that would have.

A flexible rectal tube was introduced well up to the sigmoid flexure of the colon, and a large quantity of hot water forced into the bowel. The rectal tube was withdrawn, a pad placed over the rectum and tent (which had been held in position) with a T bandage over all. I am happy to say that the effects of the hot water were soon made apparent, the pulse improved, and the hæmorrhage was arrested.

At eight o'clock that night the patient had reacted; there being odor of urine in the bed, the pads were not removed until the following morning, when they were discontinued. Dr. Todd, the resident in charge, kindly sat up with the boy the first night, giving him hypodermic injections of whisky or aromatic spirits of ammonia when required.

The patient, though weak for a time, made an uninterrupted recovery from this on, being absolutely free from pain. On the 28th of April he passed water through his urethra. On the 29th he passed a minute fragment of stone, evidently one of the small points which you will see is missing in the specimen.

The boy was discharged from the Hospital perfectly well on the 15th of May, one month after treatment.

It is probable that the vessel from whence the bleeding came was injured during the extraction of the stone, which is studded with sharp points, as you see, and that it gave way at the time or a short time after the patient was lifted into bed.

Dr. Buchanan: It was my fortune, six years ago, to assist Dr. Kersey in a similar case. At St. Francis Hospital he removed a very large stone through an incision which was probably of necessity insufficient. At all events, there was a great deal of trouble in removing the stone, and, although there was no hæmorrhage at the time, there must have been considerable contusion of the tissues. If I recollect aright, on the sixth day a very severe hæmorrhage came on. Dr. Kersey was sent for late in the afternoon, and I went with him to assist in checking the bleeding. We tried all the ordinary means to stop the hæmorrhage, endeavoring first, of course, to secure the bleeding vessel. The man seemed to be at the point of death, and we were not long in trying the umbrella catheter; but in this instance, at least, it was a dismal failure. A sufficient pressure could not be exerted. We then passed a catheter of considerable calibre as far as the bladder, and put two or three sponge-tents along side of it. The bleeding was instantly checked, and the man recovered.

Dr. Stewart: I have had two cases—one hæmorrhage from rupture of the urethra; there had been several attacks of hæmorrhage, the patient becoming very faint. When I saw him he was bleeding, and there was an opening in the perineum, which had been made to relieve the extravasation. The hæmorrhage was checked by plugging around a silver catheter placed in the perineal opening. The second case was similar to the

first, except that the hæmorrhage was caused by ulceration from prolonged pressure of a silver catheter against the margins of an exploratory perineal opening. The hæmorrhage was checked in similar manner to the preceding case.

## SELECTED FORMULÆ.

### HERPES ZOSTER.

INTERNALLY.

℞ Ext. gelsem. fl. ..... ʒi.
Sod. sulphocarbolat. ..... ʒi.
Aquæ q. s. ad. ..... ʒiij.
M. Sig.—dr. j every two hours.

℞ Tr. belladonnae ..... ʒss.
Sig.—gtt. v every two hours until throat begins to feel dry.

EXTERNALLY.

℞ Plumbi acetat. ..... dr. j.
Aluminisis. ..... dr. i.
Aquæ q. s. ad. ..... ʒiv.
M. Sig.—Apply to painful part.

*—Matthew Beattie, M. D., in New York Medical Record.*

### FLATULENT DYSPEPSIA.

℞ Magnesia.....
Calcium phosphate.....
Powdered charcoal.....
Sulphur. .....aa p. æ.
A teaspoonful to be taken in water when necessary.

*—Provincial Med. Jour.*

### BALDNESS.

In falling of the hair, a writer in the *Lancet* recommends the following, a little to be rubbed on every night:

℞ Tinct. jaborandi. ..... ʒ iv.
Lanolin. ..... ʒ iij.
Glycerin. ..... ʒ ij.
Mix with the aid of a little soft soap.

### TREATMENT OF GOUTY PAINS OF THE GREAT TOE.

The following application should be frequently painted over the painful toe:

℞ Collodion. ..... 5 grammes.
Ether. ..... 5 grammes.
Salicylic acid. ..... 4 grammes.
Muriate of morphine. ..... 1 gramme.
M.

*—Journal de Médicine de Paris.*

### SUBNITRATE OF BISMUTH FOR INFANTILE ECZEMA.

The following is recommended by the *Journal de Méd. de Paris*, May 24, 1891, in the treatment of infantile eczema:

℞ Subnitrate of bismuth. ..... 20 0 grammes.
Oxide of zinc. ..... 5.0 grammes.
Carbolic acid. ..... 2.0 grammes.
Vaseline. ..... 30.0 grammes.
M. Sig. Salve, to be rubbed in over the affected parts.

If the itching is severe, the following application will be found of great value:

℞ Subnitrate of bismuth. ..... 5.0 grammes.
Glycerin. ..... 20.0 grammes.
Carbolic acid. ..... xij gtt.
Rose water. ..... 30.0 grammes.
M. Sig. Shake well, and apply to the affected parts with a soft brush.

### TERPINE AND ANTIPYRIN IN THE TREATMENT OF WHOOPING COUGH.

Dr. M. Talamon, in a recent number of the *Medizina*, states that he has found terpine, associated with antipyrin, a most efficacious remedy in whooping cough. He uses the drug in the following formula:

℞ Hydrate of terpine. ..... 1 to 1.50 gramme.
Antipyrin. ..... 1. gramme.
Syrup of orange-peel. ..... 50. grammes.
Tolu water. ..... 60. grammes.
M. Sig. One-half to one teaspoonful several times a day, for children from one to four years of age.

### HYPODERMIC INJECTION FOR TUBERCULOSIS.

Pignol, in the *Journal de Méd. de Paris*, May 31, 1891, recommends the following hypodermic injection for the treatment of tuberculosis:

℞ Eucalyptol. ..... 0.14 grammes.
Gaiacol. ..... 0.05 grammes.
Iodoform. ..... 0.01 grammes.
Sterilized olive oil, q. s., ad. 1 cubic centimetre.

The daily dose should vary from 3 to 10 or 12 centigrammes.

### ECZEMA.

The following is highly recommended for eczema in children:

℞ Bismuth subnit. ..... ʒv.
Pulv. zinci oxid. ..... ʒj.
Acid carbolic. ..... gtt. xxx.
Vaseline. ..... ʒi.
M. S. Rub thoroughly into the affected parts.

When much irritation is present employ the following:

℞ Bismuth subnit. ..... ʒi. gr. xv.
Glycerin. ..... ʒv.
Acid carbolic. ..... xij gtt.
Aquæ rosæ. ..... fʒi.
M. S. Shake well and apply with a soft brush.

*—Nouveaux Remedes.*

THE

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The Editor will be pleased to get medical news, but it is important that brevity and actual interest shall characterize communications intended for publication.

## LEADING ARTICLE.

### ELECTRICAL INDUCTION AS A GERMICIDE.

In the experiments of various investigators of recent date, the attempt has been made to destroy micro-organisms by the application of some physical force. Foremost in this line are the experiments of Koch, and his pupils, with heat; who have made a most extended and exhaustive series of experiments.

D'Arsonval and Dubois have, in the meantime, turned their attention to magnetism, while Cohn and Mendelsohn have carefully tested the effect of the galvanic current upon the life of microbes. In galvanism, however, the results can very possibly be said to be due to chemical action, the current changing the nature of the fluids with which it comes in contact, and transforming them into germicides. According to the majority of investigators, a specific action of the galvanic current cannot be proven.

Recently, Drs. Spilker and Gottstein, of Berlin, have been experimenting with a method as yet untried by other investigators, and in which the simultaneous actions of other forces, either caloric or chemical, is absent, as are also the changes which might be produced by electrolysis.

The force used by Drs. Spilker and Gottstein, has an electrical induction current, the experiments being conducted in the following manner. The fluid containing the culture was placed in a glass test-tube wound about with a wire coil, through which an electrical current, either from a dynamo or from accumulators, was allowed to pass. Subsequently, vessels of clay were used in place of glass test-tubes. The electrial current did, indeed, produce some degree of warmth in the substance which was being tested. The increase of temperature thus produced never, however, exceeded 36.6° C.

Experiments were first made with the *micrococcus prodigiosus*, cultures of which were floated in water. This mixture was treated with a current of 2.5 amperes + 1.25

volts. The treatment lasted for twenty-four hours, during which time the temperature of the mixture never went above 30° C. The results showed that complete sterilization had been effected. However, the destruction of the micrococcus prodigious by induction could only be accomplished when the cultures were floated on or mixed with water. Gelatine or agar cultures were unaffected by the current. Various nourishing substances were added in other experiments to the watery mixture, but in this case, as in the first, the mixture was rendered sterile by the current. Other micro-organisms were tested with similar results.

The experiments, therefore, justified the conclusion that in mixtures of micro-organisms with water, the electrical current produced by induction was able to destroy the micro-organisms after a certain time.

The same results were, however, not obtainable with micrococci in milk, although the current seemed to delay the development of the bacteria in this medium for several days, and the number of colonies would also decrease. Beer (Weissbier) gave the same results as water.

Regarding the strength of the current, from 10 to 12 amperes were used in tubes of 3.5 centimetres in diameter. The duration of the current is a most important feature. In treatments lasting only one hour sterilization was never obtained, there being only a decrease of the number of germs, but no weakening of their activity.

Further experiments showed that when the water containing micro-organisms was agitated during the treatment the action of the current was quicker than when the mixture was undisturbed. The hopes expressed by the authors in their article in the *Centralblatt fur Parasiten-Kunde*, viz., that their method would find practical value in the sterilization of water supplies, were not realized, inasmuch as the application of a current for a continued time would involve too great a cost.

The action of the induction current upon micro-organisms in the blood, was more favorable even than that in water. In a comparatively short time pathogenic micro-organisms can be rendered innocuous by such a current. Blood and water, containing pathogenic germs, were rendered sterile by the induction current in from five minutes to a half an hour. Subsequent inoculation of mice with this mixture thus treated proved it to be absolutely innocuous. The authors were of the opinion that the iron in the blood played an important part in the results, since the induction current and magnetism are so closely related. Acting upon this thought, they added to the mixtures various salts of iron. While the sulphate, lactate and citrate, seemed to produce no change, the albuminate of iron exerted a most powerful influence.

If solutions of 1:1,000 of albuminate of iron were added to a watery mixture of micro-organisms, a current lasting only ten minutes would cause a sterilization which would last for eight days. After this time, however, colonies would slowly form.

Spilker and Gottstein believe that this action of the albuminate of iron is due to what Pfeffer and Buchner designated as a *chemotactic* property of certain micro-organisms.

At all events, their experiments show that with the addition of albuminate of iron to organic fluids or tissues, we have in electrical treatment by induction, a valuable agent, capable of suspending or checking the production of micro-organisms.

The therapeutic value of these experiments remain yet to be tested. Their hygienic value is, however, very evident, viz., the preparation of various foods or drinks; and it is with this subject that the authors are at present at work. Already they have shown white-beer (Weissbier) treated by electricity will keep much longer than beer not so treated. Butter also, after being treated, will preserve a fresh appearance and taste for weeks. The untreated butter, at the end of two weeks, was found to contain 30 per cent. more of free acid than that which had been subjected to the current.

The action of the current on fluids out of the body and on those in the living organism

are totally different. While in the former instance the current may be active, in the latter it is valueless. Inoculated mice were placed in clay tubes, but even a prolonged application of the current produced no result. Even when the wire was wrapped directly around the vessels of the animal the effect of the inoculation proceeded unchanged, and would finally cause the animals' death.

Perhaps the many fervent advocates of electrolysis in gynæology may find some food for thought in these experiments, which are surely of more than ordinary interest, and may very possibly result in a better understanding of the value of electricity in therapeutics, especially so in the treatment of tumors.

## Book Reviews.

FEVER—ITS PATHOLOGY AND TREATMENT BY ANTIPYRETICS. By Hobart Amory Hare, M. D., B. Sc. Philadelphia and London. F. A. Davis, 1891.

This work has already attained some reputation, being the essay to which was awarded the Boylston Prize of Harvard University in 1890, its title at the time of presentation to the Committee being The Uses and Values of Antipyretics.

As the author says in his preface, "it would be difficult to find any theme about which so much has been written in the past ten years as the subject with which this essay deals," and yet we know of no one work in which the results and conclusions obtained by so many of the best observers are so concisely summed up as here. Not only has it been the author's aim and duty "to gather up the good grain from the tares rather than to bring before the readers for his examination the entire crop of communications as a garnered harvest," but he has added accounts of a number of his own experiments, which help to clear up doubtful points about the drugs under consideration. Points of especial interest to the practising physician will be the study of the pulse tracings, the tables showing the cases in which untoward effects have occurred from the use of the various antipyretics, and the chapter in which the author gives a comparative summary of the practical value of the different agents for the relief of different conditions or symptoms. It will surprise most reades, no doubt, to find how rarely fatal effects have occurred from the use of modern antipyretics, though often "the symptoms seemed to be severe."

The book is in Dr. Hare's best style and will be eagerly read by any one who begins its perusal.

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THERAPEUTIC HANDY REFERENCE BOOK FOR PHYSICIANS—Wm. R. Warner & Co., Philadelphia. 1890.

This little book, well termed "handy" and now in its third edition, with several additions and improvements over previous ones, contains much information useful to physicians. Commencing with a table of weights and measures, arranged in both English and French terms, it continues with a short talk upon prescription-writing, an extensive posological table which gives also the physiological action in brief of each drug. Succeeding this are a few generalizations intended to aid the memory for the doses of the various preparations, and then some directions regarding hypodermic medication, with formulæ. "Incompatibilities." "Poisons and their Antidotes." Marshall Hall's Method of Artificial Respiration," "Signs of Pregnancy," and a table of the digestibility of foods, as well as one for calculating the duration of pregnancy, follow in the order given. The book ends with "Directions for making post-mortem examinations," and numerous medical formulæ.

Thus, as has been said, the book is filled with useful information, and will doubtless be of value to many physicians, as a compact and ready reference pamphlet.

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### TREATMENT OF SYPHILITIC ULCERATIONS.

Plumert gives the following applications for ulcers of syphilitic origin:

℞ Mercury salicylate.....xv gr.
Potassium carbonate.....xv gr.
Distilled water.....℥vj. M.
Dissolve. Sig. Wet compresses with this solution and apply to the ulcerations.

If an ointment is preferred, recurrence may be had to the following:

℞ Mercury salicylate.....xv gr.
Vaseline.....℥ j.
M. and make a pomade.

—*Bacteriological World.*

# PERISCOPE.

## THERAPEUTICS.

### A NEW TREATMENT OF HYSTERIA.

Of all diseases of the nervous system that which the physician meets most frequently is hysteria. It has been the custom to look upon this disease as something rather mental than physical in its character, to suppose that the victim was not diseased as much as shamming, so much so that the laity has come to regard the diagnosis of hysteria almost as an insult—an indication of a feeble mind. He would, nevertheless, earnestly protest against such a misconception. There can be no question that in hysteria we have to deal with a physical disease, and not an imaginary malady. Its symptoms may be divided into two distinct groups: (1) the mental; (2) the physical; and their severity may be entirely out of proportion to each other. In one case the mental signs may predominate; whereas in another almost none of the mental peculiarities we usually encounter may be present, and only a careful physical examination may lead to a proper diagnosis. Hysteria depends upon a condition of increased irritability of the entire nervous system, involving the brain, the spinal cord and the sympathetic. The result of this is that causes which under normal circumstances produce only a slight or transitory effect, lead to more or less permanent manifestations.

All the symptoms of hysteria are met with in a far less developed form in healthy individuals under certain conditions. It is evident that laughing and crying so often seen in the hysterical, is simply an exaggeration of that condition in the normal. The paralyses of hysteria even have their analogy in the inability of speech or to move, occurring under the influence of severe emotion, and the convulsion of hysteria is only an exaggeration of the tremor that we see ordinarily associated with fear and anger. The peculiarity of the hysterical subject lies in the excessiveness of the reaction. What causes this increased irritability is unknown, but it must be some anatomical change even if only a molecular one. Whether that alteration be seated in the entire nervous system, or whether it be located in the sympathetic, that unexplored accessory system, we do not know. That the sympathetic may play a more important role than has hitherto been proven is by no means improbable, and he leaned to that interpretation of the etiology of the disease. So many of the signs of hysteria are associated with secretory and vasomotor changes, and so many can be explained by unilateral vasomotor changes in the brain, that this theory is quite seductive.

It is one of the peculiarities of hysterical paralyses that they are unilateral, involving the upper and lower extremity, but leaving the facial nerve intact, that they are accompanied by anesthesia, but involving the head and face as well, not only of the skin, but also the special senses—hearing, sight, smell and taste. At the posterior portion of the internal capsule, between the lenticular body and the thalamus opticus, we have all the fibres collected that supply these parts, the facial nerve running more anteriorly. This region is supplied by the anterior choroid artery, a branch of the middle cerebral not anastomosing with other vessels. The anterior part of the internal capsule is supplied by the posterior communicating artery, drawing its blood supply from the carotid and basilar arteries through the posterior cerebral. A vacomotor disturbance which would cause a marked anæmia in the territory of the anterior choroid artery could not do so in that of the posterior communicating. Hence a paralysis due to anæmia arising from arterial spasms would not effect the latter region, and the facial nerve would not be disturbed. This was probably what occurred in hysteria, and was a very strong argument in favor of the speaker's opinion that hysteria is due to a lesion of the sympathetic nerve. [The speaker here domonstrated a brain in which the anterior choroid artery had been injected with carmine, showing the posterior portion only, of the internal capsule, red.] It has been rightly held that in this disease from alteration of the sympathetic nerve, a spasm of the arteries in certain parts first occurs, followed by a relaxation with œdema, the latter making the symptoms so permanent. We see the same œdema in hysteria in various parts, and a special form of it occurring in the hands and attended with cyanosis, has been lately described by Charcot as the blue œdema of hysteria.

The speaker desired to direct attention to some of the phenomena which may have escaped notice that are of great importance in making the diagnosis, and in determining whether or not the disease has been cured. These interesting symptoms are the sensory. If you examine a typical case of hysteria, you will find that the sensibility to pain, as the prick of a pin, is entirely lost on one side and that the disturbance is sharply cut off at

the median line, whereas, on the other side, the slightest prick is painful. This analgesia involves one-half of the head, neck and trunk, and the upper and lower extremity on that side, and you will also observe that the puncture on the analgesic side does not draw blood. You may find the sense of touch, pressure and temperature defective, and hearing, smell and taste may be entirely absent on the same side. In examining the eye, very peculiar symptoms are likely to be met. There is frequentiy a contraction of the field of vision in both eyes, but usually more marked upon the side upon which the sensory disturbances are found. The contraction is uniform in all parts of the field of vision. This contraction may become so great as to produce complete blindness. Another anomaly of the hysterical eye is the disturbance of color vision; the sensibility of the retina to various colors may become seriously involved, leading to complete color blindness.

A further peculiarity of hysteria is the presence of certain zones which are hyperesthetic, and pressure upon which brings forth either a complete hysterical attack, or some of its signs. The most frequent position of this hysteriogenic zone, as it is called, is the lower lateral abdomen, that termed the ovarian region. Pressure here is almost invariably sensitive in case of hysteria, and this is true of males as well as of females, proving that the ovaries have nothing to do with the symptom. For convenience it is called ovarian tenderness, but is probably produced by the sensibility of the sympathetic nerves, which are so generously distributed in that region.

Acting upon this fact, and influenced by his belief that the sympathetic is the seat of the hysterical lesion, the speaker has applied the constant current to that region in the treatment of that disease, and had met with most flattering success. Feeble currents had at first been used, but in this, as in other diseases of the nervous system, it was soon found that large doses are necessary. He had used currents from 20 to 60 milliamperes, applied for about five minutes. One pole high up the back, and the other, usually the negative, to the sensitive ovarion region. The electrodes were 6x12 cm. in size and thickly stuffed with compressed moss. In order to make it impossible to employ these strong currents, he used a very delicate rheostat, with resistances from 0 to 200,000 ohms, which enabled him to turn the current on and off so gradually that there was no shock, and permitted the use of strong currents without pain.

In nearly every case, the effect was an immediate improvement in all of the symptoms after very few applications, and, in the vast majority, complete cure, not followed by relapse. That the cure was due to the physical action of the electricity, and not to the imagination of the patient, he proved by the fact that in many instances he led the patients to believe they were taking electricity, whereas, no current was passing, and, in every such case, no benefit resulted from the imaginary treatment. He considered only those cases cured in which the subjective symptoms of despondency, *globus hystericus*, weight of the chest, numbness of the extremities and hysterical attacks had disappeared, and in which analgesia, loss or impairment of the special senses, and sensibility of the ovarian regions could not be found.—*Occidental Med. Times.*

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## TURPENTINE AS A GERMICIDE AND ANTISEPTIC.

Dr. W. Schleppegrell, in the *Medical News*, says, although the oil of turpentine (*Oleum Terebinthinæ*, U. S. P.) is not unknown as an antiseptic and germicide, its insolubility in water and its irritating properties have hitherto made its use impracticable. That it has its special uses, however, in this connection I have had abundant testimony.

It is a well-known fact among naturalists, that, if the air of a cabinet be impregnated with the vapor of turpentine, the specimens are safe from the ravages of moths and other intruders so long as this condition of the air of the cabinet remains.

Having learned the advantage of turpentine in preserving entomological specimens, I concluded to try its germicidal properties in the cases containing surgical instruments. A bacteriological examination of the cases, made four weeks afterward and compared with the examination of cases not provided with turpentine, convinced me of its efficiency, and I soon afterward applied the same principle to drawers containing towels, gauze, bandages, etc.

The method is simple. The turpentine is placed in flat, large-mouthed bottles at the bottom of each case or drawer, the volatility of the turpentine causing the vapor to impregnate the surrounding air.

Of late I have also placed my surgical instrument, the night preceding an opera-

tion, in a flat dish containing oil of turpentine. The instruments are completely sterilized, are not injured by the submersion, and are easily dried by a piece of sterilized gauze or towel. The characteristic odor of turpentine can be removed by ether.

The cheapness of turpentine and the ease with which it may always be obtained, added to its special adaptability in preserving the aseptic condition of instruments, bandages, etc., by its vapor, may make it a valuable addition to the list of our antiseptics and germicides.

I have also used benzole in the above manner. Its greater volatility gives it a more rapid germicidal action than turpentine, but its great inflammability admonishes caution in its use.

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## POISONING BY BELLADONNA PLASTER.

Mrs. W., aged 23 years, was confined four months ago. The baby was nursed till three months old, when it was thought advisable to "dry the breasts." The patient applied belladonna plasters to the breasts, and she was told not to interfere with them till they fell off themselves. Being on a visit to friends and not feeling well, she was brought to see me on February 28th. She was very pale and anæmic, complaining of frontal headache, dimness and haziness of sight, dryness of mouth and throat, thirst, and loss of appetite. She remarked that her breasts were sore, and that there was a disagreeable smell proceeding from them. On examination I found that she had two filthy sodden plasters on her breasts. When these were removed the skin presented a well-marked pustular eczematous condition over the area covered by the plasters, from which a very offensive odor of decomposing matter emanated. Over the arms and forearms on both extensor and flexor surfaces and over the front of the knee-joints, the lower fifth of the thighs, and the upper fifth of the legs there was a rash of a distinctly uticarial type, attended with considerable itching. The pupils were widely dilated. The breasts were ordered to be bathed with hot water, and then smeared over with vaseline. I saw the patient on March 3rd, and found all the symptoms quietly subsiding.

Amongst the frequenters of out-patient departments it is no unusual thing to see these offensive plasters on the breasts. Far more efficacious and cleanly applications are the liniment or the extract of belladonna rubbed up with glycerine, the breasts to be carefully bathed with hot water night and morning. In cases of pleurodynia and myalgia these applications, when rubbed into the skin, besides being cleaner, give more immediate and permanent relief than the plaster on account of the accompanying massage.

DR. P. RHYS GRIFFITHS, in *Brit. Med. Jour.*

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## BROMOL.

This is the name recently given to the well-known compound, tribromophenol, which is produced when phenol or carbolic acid is treated with an excess of bromine in aqueous solution. It has been found to possess strong antiseptic properties, and to be, at the same time, non-toxic.

Rademaker has recommended it for external use, either dissolved in olive oil (1 in 30) or mixed with vaseline (4 in 30). It may also be applied in form of powder, like iodoform, for sprinkling on wounds. In diphtheria or angina due to scarlatina, the throat may be touched with a solution of 1 part of bromol in 25 of glycerin.

The same author has used the substance internally in doses of $\frac{1}{12}$ to $\frac{1}{4}$ grain, in cholera infantum and typhoid fever with success.—*Chem. Centralbl.*, No. 21.

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## A CASE OF POISONING BY CAMPHOR.

Dr. Sydney E. Atkins, in the *Brit. Med. Jour.*, says, he called one day to see C. A——, aged five, who, he was informed, had swallowed some spirit of camphor. On arrival, he found the child lying on the sofa deeply convulsed, pupils widely dilated, pulse 120, very weak and small, extremities very cold and face livid. From what he could gather, about two and a half or three drachms of spirit of camphor had been taken, which would represent about fifteen or eighteen grains of the pure drug. He immediately gave an emetic of mustard-and-water, followed by, as soon as he could obtain it, half an ounce of ipecacuanha wine. This produced vomiting of lightish brown fluid, having a strong smell of camphor. Hot flannels were applied to the feet, and as soon as the vomiting ceased two teaspoonfuls of castor oil were administered. The patient made a rapid recovery, with the exception that for the next two or three days she complained of nausea and pain in the epigastrium, and was unable to retain anything in the stomach but a little beef-tea or soda-and-milk. This he attributed to a slight attack of gastritis.

## MODERN DERMATOLOGICAL REMEDIES.

The following information respecting some of the newer forms of external remedies used in the clinic of Professor Hebra, Vienna, is published in the *Pharmaceutische Post:*

*Spray Treatment.*—Very frequently an ether spray is used as a vehicle for mercuric sublimate (1 to 2 per cent.) and chrysarobin (10 per cent). It is considered that the spray, besides its anodyne properties, presents the advantage of attacking affected parts otherwise difficult to reach, such as those covered with hair. Whilst the mercuric chloride spray does good service, principally in affections of the mucous membrane, the chrysarobin spray is used in mycosis of the skin. The apparatus used is one combined with a ball blower.

*Medicated Soaps.*—The superfatted medicated soaps introduced by Unna are used in a form as improved by Eichhoff. The basis consists preferably of beef tallow, together with Liquor sodæ two parts, Liquor potassæ one part, and some olive oil. The superfatted soaps employed are the resorcin-salicylic, resorcin-salicylic-sulphur, resorcin-salicylic-sulphur-tar soaps. In these forms the resorcin is claimed to develop advantageously its action antagonistic to inflammation; the salicylic acid is said to dissolve the horny layer of the epidermis and to act as a bactericide; the sulphur also lowers the inflammation; while the tar diminishes the itching and favorably influences the dilated vessels.

*Glycerinum Saponatum.*—This is an ointment basis, containing a large proportion of glycerin, in the preparation of which a small quantity of a neutral cocoanut-oil soda soap is used. Its composition varies from 80 to 92 per cent. of glycerin and 20 to 8 per cent. of soap. The glycerinum saponatum is soluble in cold and warm water, and is said to possess the advantageous property of dissolving a large number of substances, and of holding other insoluble pulverulent substances in suspension. To this class belong:

A. OINTMENTS WITH AN ACID BASIS (80 per cent. glycerin).—(1) Glycerinum saponatum with salicylic acid (5 per cent,), employed especialiy for the removal of horny epidermal growths; (2) Glyc. sapo.. with salicylic acid (5 per cent.) and resorcin (5 per cent.) combines the properties of the preceding with those of resorcin in diminishing the inflammation, acting as an antiseptic, and promoting the regeneration of the epidermis; (3) Glyc. sapon. with salicylic acid (5 per cent.) and creosote (5 per cent.) promotes healing without pain in lupus vulgaris, lepra, etc.; (4) Glyc. sapon. with salicylic acid (3 per cent.) and tar (10 per cent.), useful in scaly eczema with itching.

B. OINTMENTS WITH A NEUTRAL BASIS (92 per cent. glycerin).—(1) Glyc. sapon. with zinc oxide (5 per cent.), used for cosmetic purposes and in slight cases of eczema; (2) Glyc. sapon. with sulphur (10 per cent.); (3) Glyc. sapon. with zinc oxide (10 per cent.), used in acne; (4) Glyc. sapon. with iodoform (5, 10, to 50 per cent.), said to be remarkably active, purifying and promoting granular action in wounds, ulcers, buboes, and carbuncles; (5) Glyc. sapon. with chrysarobin (10 per cent.), approved especially in psoriasis; (6) Glyc. sapon. with hydroxylamine (1 per cent.), used in psoriasis of the face and hairy scalp; (7) Glyc. sapon. with ichthyol (5 per cent.) renders good service in violent itching of skin affections and arthritic swelling of the joints; (8) Glyc. sapon. with ichthyol (10 per cent) and zinc oxide (10 per cent.), as in the preceding, and in incipient eczema; (9) Glyc. sapon. with carbolic acid (2 to 3 per cent.) is good for disinfecting the hands and also to relieve itching.

In other cases the vehicle represents a kind of dressing. Among the *Pastes*, the zinc-starch-vaseline paste, with corresponding medication, takes a high place. This paste is used with good result in combination with salicylic acid (acid. salicyl., 1–2; zinci oxidi et amyli, aa 25; vaselini, 50). The paste adheres to the face without any bandage; it is also dusted with starch. In the *Traumaticin* treatment, traumaticin (a solution of 1 part of gutta-percha in 10 to 15 parts of chloroform) is used as a medium for applying different remedies, such as chrysarobin, etc. It forms a pliant coating, and surpasses collodion by far in this respect.

*Glycero-Gelatin* is prepared in three forms: soft (5 per cent. gelatin added), hard (10 per cent. gelatin and water), and hard (10 per cent. gelatin without water). Before using, the preparation is liquefied by heat, and in this condition is spread on to the part affected, by means of a brush, and covered with mull.

In the preparation of ointment and plaster mulls, Unna's recommendation is followed to substitute lard by mutton fat, which renders unnecessary addition of paraffin or wax. The dressings are dipped into the melted mass, dried, and rolled up. The gutta-percha mull is considered to present many advantages.

A new kind of dermatological plaster has been introduced, the basis of which consists

of purified india-rubber and anhydrous lanolin worked up together to a remarkable adhesive mass. The mixture is medicated with various substances and spread upon linen, and it is then known as *Collemplastrum.* Among the advantages claimed for this kind of plaster are its low cost; that the mass does not separate from the linen; that, while possessing the adhesive properties of india-rubber plaster and lanolin, it favors the absorption of the added medicament; and that the plaster can be readily removed without leaving portions adherent to the skin. Besides the simple Collemplastrum adhæsivum, others are used, containing respectively 10 to 20 per cent. salicylic acid, 30 per cent. pyrogallic acid, 60 per cent. mercury and 5 per cent. carbolic acid, 50 per cent. thiol, 40 per cent. zinc oxide, 10 per cent. liquid pitch, etc., etc.—After *Pharm. Journ.*, May 23d.

## MEDICINE.

### THE RELATION OF CHOREA TO RHEUMATISM AND HEART DISEASE.

P. Meyer, in *Berliner Klin. Wochen*, gives an account of 121 cases of chorea treated in Hinoch's clinic during the past five years. In nine per cent. of the 121 cases there was a history of rheumatic symptoms, and in ten per cent. heart disease without any rheumatic symptoms was made out. In two per cent. of the cases both heart disease and rheumatism were present. From these statistics the author concludes that chorea is merely a symptom which can be induced by the most varied causes. This, however, is only a partial representation of this subject. Any hypothesis which does not take into consideration the functional predisposition to chorea cannot be accepted as adequate to explain its nature. This functional predisposition is necessarily always present. It essentially consists in the want of a due stability in certain motor areas. It is the element in chorea that is inherited, and without which the disease cannot be brought about. It is true that it is possible to have an acquired instability of certain cortical areas, as the result of many diverse injurious influences. Given this instability of the motor cortex, the causes that may induce choreic movements are very various. In one case it may be simple emotion, in another any internal or external poisonous agent. In the latter class may be included the poison of rheumatism. This poison then induces not only this disease, but the chorea and endocarditis. There are no grounds for entertaining the opinion sometimes expressed that chorea causes endocarditis. When the three diseases appear in the one case, it is more than probable that they are induced by some poison, either the rheumatic or allied poison, and in such cases the proper treatment is the treatment of the rheumatic state.—*Amn. Gyn. and Ped.*

### VACCINATION AS A PREVENTIVE OF INFLUENZA.

Dr. Goldschmidt, of Madeira, hopes to conquer influenza by means of animal lymph, as re-vaccination against small-pox seems to confer almost perfect immunity from influenza. In consequence of the neglect of vaccination, small-pox prevails frequently in Madeira, and not long ago it carried off more than 1,000 victims. The doctor went in for re-vaccination, and now finds that not one patient out of 112 successful cases suffered from influenza, and out of 98 unsuccessfully vaccinated, only 15 persons were seized by the influenza, and these in each case but very slightly. Recently vaccinated infants did not catch the influenza. It therefore appears to follow that re-vaccination gives effective protection not only against small-pox, but also against influenza.—*British and Colonial Druggist.*

### PHAGOCYTOSIS AND IMMUNITY.

The fact that one attack of a contagious malady, such as small-pox or scarlet fever, renders an individual immune against a second attack has never received adequate explanation. It is even more difficult to explain satisfactorily the immunity conferred on an animal by inoculating it with the attenuated virus of a disease which in its ordinary form is often, and in a few cases invariably, fatal, such, for instance, as protective inoculation for anthrax, chicken cholera, and the older method of vaccination to protect from or modify an attack of small-pox (*The British Medical Journal*). In a lecture recently delivered by Dr. Metchinikoff at the Pasteur Institute, an attempt is made to prove that the defending powers exercised by the amœboid cells of the organism are in a large measure concerned in conferring this immunity, The aggressive characters of these amœboid cells has earned for them the name of "phagocytes," and Metschnikoff points out that they are of difierent kinds, and originate in various ways. In connection with the subject of immunity, it is im-

portant to remember that these phagocytes can include and destroy micro-organisms; but the more malignant the micro-organisms the more rarely is it found within the phagocyte, and this is especially true of such diseases as chicken cholera, hog cholera given to pigeons and rabbits, and anthrax of mice. All these diseases have the character of general acute septicæmia and cause death within twenty or thirty-six hours. According to the views expressed in this lecture, we are to believe that when the micro-organisms are attacked by the phagocytes, an animal may recover from the disease. In the malignant forms, where the phagocytes do not intervene —that is, phagocytosis or amœbic warfare is not established—then the bacteria overrun the organism, and induce death. This partiality of the phagocytes is attributed to their sensitiveness to external influences, and especially to the chemical composition of their environment. These cells are powerfully attracted by many micro-organisms, and repelled by others. This attraction and repulsion are expressed by the terms "positive chemiotaxis" and "negative chemiotaxis." Now the basis of the theory appears to be that the chemiotaxis of the phagocytes of a given animal is mutable, and that cells may be gradually attracted to substances in a mild form from which they shrink when presented to them in a concentrated form. Hence by inoculating an animal with an attenuated virus the chemiotaxis, previously negative, will acquire positive characters, and at last be induced to attack the micro-organism of a malignant disease should occasion arise. Any attempt to explain immunity from infectious diseases on a rational basis will be very welcome. The theory propounded by Metschnikoff, is, like all the previous communications made by him on the subject of intracellular digestion, the outcome of patient and industrious observation, and must command our attention. His views, formulated for the first time in a consecutive manner in this lecture, promise to revolutionize opinions as to inflammation and fever, and this attempt to explain the power of the cells to confer immunity from infectious diseases is sure to be hotly contested, for every important contribution to this confessedly obscure subject must necessarily be in a large measure hypothetical—*Med. Presse.*

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## THE DIAGNOSIS OF INCIPIENT MELANCHOLIA.

Dr. S. Grover Burnett, writes: Insomnia is present in some degree in all the forms of melancholia, being more marked in simple melancholia and melancholia agitata than it is in melancholia attonita, and melancholia with stupor; this would suggest again that the nuchalalgia was playing its part here in the role of production. I do not mean to assert that it is necessary at all times to have the nuchalalgia present in order that there may be insomnia, for I believe the delusions are often sufficient to keep patients awake. I have often, while making my rounds of the wards, at all hours of the night, had occasion to observe this condition, and it has not been uncommon to find these patients wide awake, with no indications of having been asleep.

Why are diagnostic symptoms important in incipient melancholia?

As I have said, it is in the early periods of the disease that it is so frequently improperly diagnosticated, and it is the inherent tendency of these very cases to become homicidal and suicidal. Such instances as these are the very ones that fill our daily newspapers with tragic sensationalism, and leave the general public wrapped in the mystic thought of some dastardly deed, which has simply been the outgrowth of a depressed and melancholy mind. Such an occurrence as this—which, I am sorry to say, is more common than you would imagine—is sufficient to point out to us the importance and usefulness of any symptom or group of symptoms that will lead to the recognition of a mental derangement which, sooner or later, will bring crime to the eyes of the public; humility, distress, and perhaps death in private life.

This propensity to take life may come upon them suddenly, or be gradual in its development. I recall the case of a large, heavy man, who was determined to take his life. In conversation he would reason quite well on many things, and when alone he would be seized with a fit of depression and a desire to kill himself. Notwithstanding he was closely watched, he evaded his attendant and threw himself head first down a stairway. He reasoned that the weight of his body, falling from a height on his head, would produce death. Unfortunately for him, he struck his head a glancing blow, as he jumped hurriedly and at an angle, rather than perpendicularly. He suffered from concussion of the brain, but survived his injury. All cutting and sharp-pointed instruments had to be taken from him. Shortly after being able to leave his bed he again evaded his nurse, and this time he jumped from the railing of a high piazza, head first, and, as he had reasoned, his weight was suf-

ficient to drive the cervical vertebræ into the base of the skull, producing instant death.

It is not uncommon to see melancholiacs whose real condition has not as yet been recognized awaiting some suggestion through which they may be able to carry out their morbid tendencies. A case of this kind was that of a gentleman who was noticed by his associates to be somewhat depressed. They thought to chide him a little and "drive away his blues," when he remarked he wished he was dead. One of the company carelessly remarked: "Go throw yourself over the stair railing." He deliberately carried out the suggestion before any of them had time to interfere. He fell through three floors on to a tile floor, killing himself, of course.

Suicidal and homicidal acts are frequent results of disappointed love affairs, and in these instances the real melancholia, which is undoubtedly secondary to the extreme disappointment and is responsible for the act, is often never recognized till it is too late.

Such occurrences are so common that it is useless to take up more time in illustrating this feature of melancholia, which is deserving of being considered an early diagnostic symptom, and is important both to the practitioner and to the neurologist. From a therapeutic and diagnostic standpoint it cannot be otherwse than recognized as of great efficacy. To arrive at a proper diagnosis. based upon various forms of depression, is not always an easy matter, for we find depression presenting itself in a variety of forms, each of which is dissimilar in its origin. Mental depression may be the initiative symptom of any form of mental disease, and, again, it may exist independent of any mental affection whatever. Gastric disorders often give rise to marked depression, also hysteria, hypochondria, and conditions of sadness. A differential diagnosis here is important, but not always easy to make. If the depression exists in connection with nuchalalgia and insomnia, the rest is easy.

*Therapy*, of course, should be based on the diagnosis made; hence, with a history which is in keeping with the presence of insomnia, the ache, and depression, we should feel quite positive as to what we have to deal with, and should institute precautions of safety and therapeutic measures at once. By this early interference I believe much mental aggravation and distress may be saved; but, in order to do this, it is essential for the physician to be conversant with the case and to have *entire* control, so that his instructions will be carried out in full.

As students about to enter into your new field of duties, I trust you may give this matter due consideration, for my clinical experience has taught me the value of these symptoms given you, and, since I have learned that they are ardently advocated as *clinical facts* by one so able as Dr. Gray, I am proud to have the privilege of presenting them to you for the first time.—*N. Y. Med. Jour.*

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## SURGERY.

### WOUNDS OF THE INTRA-CRANIAL SINUSES.

Dr. W. T. Briggs in a paper upon this subject said that it is one which had not received from authors the attention its importance demanded, and that very little indeed had been written upon the subject. In many standard works upon surgery no reference whatever is made to it. He did not propose to shed additional light upon this neglected subject, but simply to give his impressions from the study of a number of cases of injuries of the sinuses which had fallen under his observation. The following is a summary of his paper.

The dural sinuses are so well protected by the tutamina cerebri that they are not often the subject of wounds. Occasionally an injury inflicted on the surface of the cranial walls without a lesion of the bones, or even of the scalp, may rupture a sinus and produce a fatal internal hæmorrhage.

A blow or fall may fracture the skull at one point and lacerate a sinus situated at a greater or less distance from the point of a fracture. More often a sinus is wounded by a sharp-pointed fragment of bone in comminuted depress fractures, or by the penetration of the skull by pointed or sharp-edged instruments, or by gun-shot wounds. Occasionally the sinuses are opened by the pointed teeth of the trephine.

The older writers upon surgery warned surgeons to avoid the situation of sinuses in the application of the trephine. Modern authors do not hesitate to advise the use of trephine directly over the sinuses if necessity demands. He had often removed sections of the skull an inch or more over sinuses with Galt's trephine, without injuring the vessels.

The result of such wounds depend on the character of the lesion. When a large opening is made in a sinus, the hæmorrhage, if not promptly restrained, may prove rapidly fatal. When the opening is direct and not large the hæmorrhage may be easily checked by appropriate means. When the blood does not escape through the external wound

but accumulates in the skull, compression of the brain ensues.

The entrance of air into sinuses, though they are calculated by their anatomical construction, is not of frequent occurrence.

The hæmorrhage arising from an open wound of a sinus may be easily controlled, and the opening permanently closed by prompt and appropriate treatment.

When the hæmorrhage is concealed and symptoms of compression arise in consequence, the trephine should be used for the removal of bone over the wounded sinus, that it may be properly treated.

The means that may be used in the treatment of wounded sinuses are, 1st, The encircling ligature; 2nd, The lateral ligature; 3rd, Suture; 4th, Acupressure; 5th, Forcipressure; 6th, Direct compression.

1st. The ligature might be used with success in arresting bleeding from sinuses, but the usually small opening in the skull and the consequent difficulty of placing it is an objection. Besides other means more easily used are equally effective.

2nd. The lateral ligature has proven effective in the hands of some surgeons but, in my opinion should not be restored to because its action is uncertain. It is very liable to slip and give rise to secondary hæmorrhage, besides it does not put the parts in the best condition for healing.

3rd. The edges of an opening in a wounded sinus may be closed and all bleeding stopped by saturing the edges of the wound with aseptic silk. When there is free space for work the suture is very effective, and may be practised with great confidence. In the application of the suture it is necessary that the intima should be brought in contact, which can be best accomplished by the continuous through and through stitch instead of the glover suture.

4th. The value of acupressure in controlling bleeding in these accidents is undoubted. The passage of a pin through the sides of the dural opening and the application of a thread thrown over the pin will effectually control the hæmorrhage. The compressing pin does not irritate and need not be retained very long.

5th. Forcipressure is also a valuable measure in the treatment of hæmorrhage from wounded sinuses. It is easy to grasp the mouth of a gaping sinus with hæmostatic forceps and leave it in situ until it produces permanent obliteration of the wound. It is complete and effective.

6th. The remedy to which I call attention last is by no means the least valuable means in our possession. Indeed, in my opinion, it is entirely sufficient to control any bleeding from wounded sinuses, and I have invariably depended on it in all the cases I have treated. I refer to direct compression. A small dossil of aseptic gauze or cotton is to be placed directly over the wound in the sinus, a small compress is then to be placed over the pledget, the flap of skin is then to be drawn over these, a compress over the flap so as to be retained by a well-adjusted bandage. The bandage and the external compress may be removed in a few days, but the internal compress is not to be disturbed until it is loosened by the discharges from the wound, or better still, until it can be washed away by a gentle stream of water. I do not think a better device can be utilized for the purpose. It is scarcely necessary to say that the treatment of wounds of the sinuses after hæmorrhage should be conducted upon strictly aseptic and antiseptic principles.

The author illustrated his paper by the report of a number of interesting cases which had occurred in his practice.—*Nashville Med. & Surg. Reporter.*

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## FOREIGN BODIES IN THE AIR PASSAGES.

Dr. Sprengel, of Dresden (*Centralblatt für Chirurgie*, April 4th), affirms that the question as to which of the bronchi is the seat of a foreign body impacted in the air passages can in many cases be readily and positively settled by the aid of auscultation. It is usually assumed that, if the air does not pass into one lung, the corresponding bronchus is completely closed by the foreign body, and that if the obstruction of the bronchus be incomplete, there will be a sibilant sound on inspiration at the seat of impaction, whilst the respiratory sounds on the opposite side will remain normal. Under certain circumstances, however, the determination of the precise situation of the foreign body may be attended with some difficulty. As a proof of this a case is recorded by Dr. Sprengel of a little girl who came under his care suffering from much dyspnœa in consequence of the presence of a foreign body in the air passage. There was a sibilant inspiratory sound over the right bronchus, while on the left side the respiratory sounds were almost inaudible. Tracheotomy was performed below the isthmus of the thyroid body, and the foreign body was seen occupying the whole lumen of the trachea, just above its bifurcation. The auscultatory signs in this case are to be explained, the author states,

by the nature of the foreign body, which was a large hollow bead, oval in form and open at each end. This, it is conjectured, was fixed at one end into the upper part of the right bronchus, and stretched across the lower end of the trachea, completely occluding by its distal portion the orifice of the bronchus on the left side. Thus the air was prevented from entering into the left lung, whilst it passed into the right lung through the tube formed by the large hollow bead, the narrowness of which, and perhaps an occasional occlusion by mucous, was the cause of the severe dyspnœa and of the sibilant sound during inspiration. This case, it is pointed out, shows that a hollow or tubular foreign body fixed at the lower part of the trachea may, by the signs which it produces, lead one to assume that it is fixed in one of the bronchi, since the air enters one lung and is excluded from the other. The absence of respiratory sounds on one side of the chest, or a sharp whistling sound heard over one bronchus, cannot be regarded as absolutely diagnostic of the presence of a foreign body in a bronchus unless we know that such body is a solid and not a tubular one.—*Brit. Med. Jour.*

## GYNÆCOLOGY.

### ON PERINEORRHAPHY BY DUKE'S OPERATION.

Dr. Thos. More Madden writes in the *Lancet:* The frequency of the occurrence of parturient lacerations of perineum, as well as the occasional gravity of their consequences, and the difficulties sometimes experienced in their reparation, may, I trust, be sufficient excuse for the following very brief communication on this subject. For many years I was in the habit of treating the injuries referred to by the older methods then in vogue. These procedures I have for some time, however, almost completely abandoned, having become familiar with the improved mode of treatment suggested for such cases by Mr. Duke, of Dublin, the advantages of which, I think, are such to ensure its general adoption in the treatment of the majority of instances of this kind. On first reading the author's account of his method of perineorrhaphy, it seemed to me as being probably a modification of Mr. Lawson Tait's ingenious operation for the same purpose; but on giving it a practical trial, however, I found that it was quite distinct. The differences in detail between the two operations which most impressed me were—(1) the absence of flaps, (2) the depth and shape of the incision, and (3) the introduction of the sutures from without in the operation recommended by Mr. Duke, whose procedure in the latter particular I have modified in my own practice by the adoption of a specially designed form of quill suture. The solidity of the union resulting from the healing of the deep incision is to my mind one of the great advantages of this operation, affording, as I have found, a means of reproducing the perineal body, which may be regarded as the keystone of the entire structure. The results of perineorrhaphy by Duke's method (with the technique of which I need not occupy space here, as it has been sufficiently described by the author) may be best exemplified by the results of the cases of perineal rupture, which within eighteen months were either sent up to me for operation or presented themselves at the out-patient department of the hospital, suffering from the usual consequences of this distressing accident. In only one of these cases did I fail to obtain primary union, and in that instance this was eventually secured by granulation; whilst in nine cases the operation resulted in complete restoration of the structural integrity of the injured parts. The average time occupied by the healing process was about ten days, and the patients then generally left the Hospital with a practically new perineal structure, the solidity of which was such that it would be difficult to imagine its disruption by any subsequent delivery however tedious or severe.—*Lancet.*

## OBSTETRICS.

### THE EXPRESSION OF THE PLACENTA.

By what is known as Credé's method, is sometimes followed by shock, supposed to be due to pressure upon an ovary or Fallopian tube. Three cases of this kind are reported in volume xiv of the "Transactions of the Edinburgh Obstetrical Society," and a correspondent of the *British Medical Journal* writes of another that occurred in his practice. In expressing the placenta, which seems to have been attended with difficulty, the operator felt something hard and round slip from between his thumb and the womb, the patient at the same time crying out in pain and becoming immediately unconscious. No great difficulty was experienced in bringing her to, but the accident is unpleasant and one that it should be easy to avoid. The patients to whom it has happened are all

spoken of as "nervous" subjects; but as it is well known that injury to the testicle produces shock altogether out of proportion to the apparent damage done, it is not surprising to find that pressure upon the ovary also causes great shock. Charpentier would no doubt find in this accident an argument in favor of his claim that traction upon the cord is preferable to abdominal pressure in the delivery of the placenta.—*N. W. Lancet.*

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### A SHORT REPORT OF THE USE OF ICHTHYOL IN DISEASES OF WOMEN.

Dr. Kotschau was led to use this drug in a case of painful pelvic peritonitis, with excellent results, after having observed that it acted well in relieving pain in cases of contusions or inflammations affecting joints, muscles, and bones. He then began to use it generally, and reports 127 cases, of which 28 were cases of endometritis cervicis; 16 were cases of endometritis corpus uteri; 52 perimetritis (pelveo-peritonitis, exudations, salpingitis, and oöphoritis); 4 pure metritis, the adnexa not being involved; 27 cases of parametritis.

The cases of cervical catarrh were treated by making applications of ichthyol to the portio vaginalis. In acute cases six to eight applications were made in all, each one at an interval of three to four days and in conjunction wlth warm injections and general massage. Of the 28 cases, 19 were cured, the other 9 showed no improvement.

Applied to the body of the uterus it has proven as effective as iodine or chloride of zinc, and never causes the colicky pains which these drugs produce at times.

In the 52 cases of perimetritis, with the exception of 6, a rapid cure was effected. A ten per cent. ichthyol-glycerin solution was applied on tampons, these applications being made twice a week by the writer and daily by the patients themselves, the patients also taking sitz baths daily. In the 6 cases no improvement took place.

Of the 27 cases of parametritis, 5 were not improved, except to slightly diminish the pains, 12 were completely cured, and the remaining 10 were markedly benefitted, though not entirely cured. In all of these cases ichthyol pills (0.1 t. d.) were given internally. The pills seemed to improve the patients' appetites and to hasten absorption of the exudation.

In the 4 cases of metritis no benefit was obtained by the use of the drug.

The author, therefore, recommends the use of ichthyol; for, even where it did not cure the disease, it frequently relieved the pains. —*Exchange.*

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## PÆDIATRICS.

### HEADACHES OF CHILDHOOD.

Jules Simon (*Gaz. des hop.*, Nos. 36 and 37—*Revue des Malades de l'Enfance*, May, 1891) recognizes seven different groups of headaches:

1. THE HEADACHES OF GROWTH.—They are frontal, exaggerated by work, coincident with pains of the joints, periosteum and cardiac hypertrophy. Treatment, muscular rest, tonics, good food, phosphate of lime, beer and malt.

2. HEADACHES FROM MENTAL STRAIN.—The children are either very intelligent and excitable, working very hard; or, on the contrary, they are those of late mental development, who have difficulty in pursuing their studies. Treatment, in the first class of cases, cessation of mental work, physical exercise of all descriptions, without fatigue, and hydrotherapy. In the second class, a moderate amount of mental and physical exercise.

3. HEADACHES FROM DIGESTIVE DISTURBANCES.—In children who eat too often, or too much, or too rapidly; appearing in from one to three hours after a meal. Treatment, strict regulation of diet; one of the bitter tonics before meals; warm drinks after meals; treat the constipation.

4. NERVOUS HEADACHES.—This form is easily recognized, it includes the headaches of those that are irritated by their surroundings, persons as well as circumstances, our future neurasthenics, epileptics or hysterics. Treatment: short douches, exercise, massage, valerian, aconite and antipyrin for the hysterical patients; belladonna and the bromides for the epileptics. Avoid colds.

5. RHEUMATIC OR GOUTY HEADACHES—Are sometimes accompanied by intense congestive phenomena simultating meningitis. They are recognized by their hereditary antecedents, by being associated with other pains; neuralgias, arthralgias, myalgias; the urine contains a great quantity of phosphates, oxalates and urates. Treatment, moderate feeding, exercise in the open air, Russian baths and rubbing; laxatives; alkalis; salicylate of soda in doses of from 0.25 to 0.30; tincture of colchicum, gtt. 10 to 15 daily.

6. HEADACHES OF ANÆMIA AND INTOXICATION.—In the first instance as the result

of lack of fresh air, bad hygiene; in the second, by malaria, carbon monoxide, excessive medication (iodine, opium, digitalis, belladonna). Treatment, remove the cause.

7. HEADACHES PRODUCED BY LESIONS OF THE NERVES OF SPECIAL SENSE.—In the eyes, chronic conjunctivitis and keratitis, to be treated locally and with large doses of quinine; troubles of refraction like hypermetropia and astigmatism to be relieved by proper glasses. In the nose, polyps, hypertrophy of the turbinated bones to be treated locally. In the ear, adenoid vegetations, otitis, foreign bodies in the external auditory meatus.

## HYGIENE.

### ACCIDENTAL INOCULATIONS WITH TUBERCLE.

The presence of the tubercle bacillus affords a ready proof for the local development of a tubercular manifestation which has resulted from accidental inoculation. Jadassohn records two cases of lupus which had developed in this way. One patient was a butcher, upon whose finger tip an ulcer developed, and subsequently a typical lupus patch formed on the forearm, and another on the upper arm. The discovery of tubercle bacilli in the lesion proved it to be tubercular. In the second case, the lupus developed on the site of a tattoo, and coincided exactly with the lines of the tattooed design. The operator, it appeared, was phthisical, and had used his saliva in mixing the colors. —*Med. Press.*

### THE NUTRITIVE VALUE OF RECTAL INJECTIONS OF EGG ALBUMEN.

The assertions of Voit and Bauer and Eichhorst to the effect that egg albumen is absorbed by the rectum only in the presence of a certain proportion of chloride of sodium, but is returned unaltered with the fæces if this reagent be absent, had led Huber to investigate this point anew, and to make his observations on man, and not on dogs, as his predecessors had done. The experiments were planned with great care, and the quantity of albumen removed from the body, both by the urine and the fæces, was estimated. As the outcome of several series of experiments, the results of which show a great agreement, the author gives as his conclusion that egg albumen simply beaten up is absorbed by the rectum, but only in very small quantities, and consequently a nutrient enema of this kind possesses hardly any value. When, however, a certain amount of common salt is added (15 grains to each egg in the present series of experiments,) the quantity of albumen absorbed is doubled. Peptonized egg albumen was absorbed in very slightly greater proportion than that treated with common salt, but of peptonized albumen with salt, between sixty and seventy per cent. was absorbed, and we, therefore, have in this mixture an extremely valuable material for nutrient enemata.

In no case of Huber's were the enemata expelled; nor was albuminuria ever found to occur after their use.

## MEDICAL CHEMISTRY.

### AN ALKALOID FRON TUBERCLE BACILLI.

By treating the contents of tubes containing agar-agar cultures of the tubercle bacillus with hot water acidulated with hydrochloric acid, filtering, evaporating, precipitating with platinum chloride, separating the double salt with hydrogen sulphide, filtering, and evaporating to dryness, Zuelzer (*Berliner klin. Wochenschrift*, 1891) was able to abtain a chloride of an alkaloid, 0.01 of which, injected into rabbits and guinea-pigs, caused, in from three to five minutes, increased frequency of respiration, elevation of temperature and protrusion of the eyeballs. The eyes were brilliant, the pupils slightly dilated and the conjunctiva injected. The protrusion was the more marked on the side on which the injection was made. The symptoms lasted for from fifteen to twenty minutes. Three rabbits died after injections of 0.02 or 0.03. The muscles into which the injections were made were reddened and the seat of hæmorrhages; there were also hæmorrhages in the mucous membrane of the stomach and of the upper portion of the duodenum. In two cases there was ascites. Similar results followed introduction of the substance into the conjunctival sac.—*Amer. Jour. Med. Science.*

## NEWS AND MISCELLANY.

### THE CROONIAN LECTURES.

Owing to the illness of Dr. Burdon Sanderson, who is now recovering from at attack of influenza, the Croonian Lectures have been postponed. Due notice will be given of the date fixed upon.

### FEMALE PHARMACISTS IN FRANCE.

A bill is now before the French Legislature which provides for the admission of duly qualified females into pharmacy. This bill practically restores to women the rights they possessed five hundred years ago.